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Fortnightly Review

Hallelujah!

A SIGNIFICANT trend—the beginning of a new era for civil aviation—is becoming apparent as a result of recent actions and plans of the Civil Aeronautics Authority. It is a trend away from detailed, minute inspection by federal CAA inspectors, and the placing of the responsibility for certification of pilots, planes and operators, upon flying schools, repair bases and the operators themselves.

First step in this decentralization process which can remove one of the most irritable factors in civil aviation of the last 10 years, is the "spot-checking" procedure adopted by the CAA for certifying of private pilots. No longer is the federal inspector giving each fledgling his flight tests; from now on, the flight instructor does the certifying and the CAA inspects the instructors and flying schools. By "spot-checking" one or two students out of each group the CAA inspector will be able to judge the standard of instruction given.

With the civilian pilot training program well along, the CAA was forced either to hire scores of inspectors or to ease the inspection job by delegating the responsibility and authority to approved schools and re-certified instructors. The CAA chose the latter, and by so doing is opening the way for further delegation of responsibility in other fields.

Although plans are not yet perfected, the CAA expects soon to delegate the job of approving repairs and plane installations to approved repair stations. No longer will the CAA inspector have to go through the motions of minutely inspecting each new part and each

(Turn to page 16)

Air Transport Fleet Up 28% in 1940; Seats Up One-Third

CAA ESTABLISHES FIRST NEW ROUTE

Northwest Airlines Gets 136-Mile Line
from Twin Cities to Duluth-
Superior

It its first new route decision, the Civil Aeronautics Authority on Mar. 7 granted Northwest Airlines a mail-passenger-express line from St. Paul-Minneapolis to Duluth-Superior, a distance of 136 miles.

Northwest had sought routes from Chicago to the Twin Cities via Fond du Lac, Oshkosh, Green Bay, Waussau and Superior-Duluth, and from Chicago to Marquette via Fond du Lac, Appleton, Green Bay, Marinette-Menominee and Escanaba. As an alternative, the company asked Chicago-Twin Cities via Milwaukee, Sheboygan, Fond du Lac, Oshkosh, Green Bay, Marquette, Ironwood and Duluth-Superior.

On Dec. 22, 1939, a proposed report was issued by CAA Examiners Francis W. Brown and Lawrence Koters (AMERICAN AVIATION, Jan. 1), recommending establishment of the Twin Cities to Duluth-Superior operation, and denial of the other applications. The

(Turn to page 12, col. 1)

Gets New Route



Croil Hunter
President of Northwest Airlines,
which has been granted authorization
from the CAA for the first new route
issued on its own initiative.

76 Planes Scheduled for Delivery; Great Personnel Expansion

DOMESTIC scheduled airlines are increasing the total air transport fleet of the nation by 28% during 1940, with available seats increased by over a third for the same period.

The first year of "The Flying Forties" gets off to an exceptional start with the greatest fleet expansion ever undertaken in any one period. Total cost of 76 new transport airplanes for delivery in 1940, not counting orders for Douglas DC-4 transports for delivery in 1941, amounts to well over \$10,000,000.

Along with fleet expansion is coming a sizeable increase in personnel. Part of this increase is necessary because of additional planes, part is necessary because of greatly increased passenger business.

Twenty-three of the 76 new 1940 planes already have been delivered and most of these have gone into service. Ten airlines are taking new aircraft this year and one, TWA, is taking delivery of the first four-engined transports to go into airline service. Another line, Delta, is introducing four Douglas DC-2 transports to its line this month but because these planes are not new, having been purchased from American Airlines, they are not included in the new plane totals.

On Dec. 31, 1939, there were 263 transport airplanes in service by scheduled airlines. These included certain reserve ships not used except for emergencies and for heavy business. Because all of the new 1940 equipment has larger seat capacity relative to most existing equipment, the available seats for 1940 business will represent an unprecedented increase. By Dec. 31, 1939, there will be 339 transports in service.

Largest individual fleet increase this year will be by American Airlines with 24 DC-3's and two DST sleepers scheduled, five of the ships already having been received from the factory. By the end of the year American will have 79 transports, a fourth of the entire industry's total. It has sold four DC-2's to Delta.

Noteworthy is the fact that although about eight major airplane types are now in service, only four types are being delivered this year. TWA's five Boeing four-engined transports cost about \$1,575,000; the 60 DC-3's cost about \$7,

(Turn to page 6, col. 1)

Tom Hardin Calls for Spinproof Planes As Essential Safety Aid

Praises Pilot Training Program as Being 600% Safer Than Miscellaneous Flying Generally; Hints CAA Action on Future Craft

The CAA's civilian pilot training program has been more than 600% safer than the record established by private flying generally in 1939, it was declared by Tom Hardin, chairman of the Air Safety Board in an address on Mar. 6 before the Association of the Bar in New York City.

"While the Air Safety Board recognizes and long ago officially endorsed the fundamental soundness and efficacy of controlled flight instruction such as is being given in the Authority's student training program," Hardin said, "it is convinced there is an even more basic approach to the problem of increased safety in private flying.

"The Air Safety Board is a fact-finding and fact-facing organization and it knows as a matter of practical common sense that the degree of skill and the

degree of supervision with which we have to deal in airline flying can never even be approximated in the private flying field no matter how hard we strive toward that end.

"Consequently, the board is convinced that steps must be taken to provide the private flyer with airplanes that are inherently simpler to operate and safer to fly than conventional present-day aircraft, the characteristics of which are so largely responsible for the deplorable casualty rate in all non-airline flying. More than half of the fatal accidents with which we have to deal in private flying are due to stalls and spins and, in our opinion, are definitely preventable accidents.

"I make that statement advisedly because it is possible to build airplanes which are inherently spinproof and de-

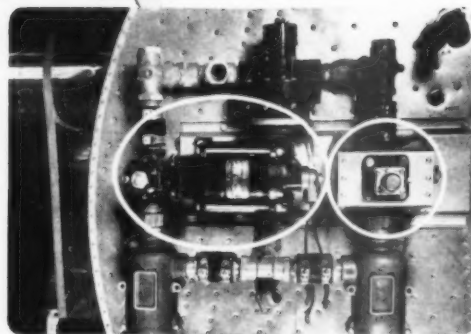
(Turn to page 10, col. 1)

Curtiss-Wright chooses PESCO PRODUCTS for the new Substratosphere Transport



● Extensive performance tests under conditions far more strenuous than those encountered in actual flight determined the selection of these five PESCO units on the new Curtiss-Wright Substratosphere Transport. Curtiss-Wright engineers found that even at altitudes of 20,000 feet and at speeds of more than 200 miles per hour PESCO products had "what it takes"...

Day after day Pesco products are proving their dependability on all major air lines and on leading military and private aircraft the world over...



PESCO FUEL PUMPS ON FIREWALL OF THE CURTISS-WRIGHT SUBSTRATOSPHERE TRANSPORT.

PESCO ELECTRIC MOTOR-DRIVEN FUEL PUMP (circled left, above)—a "stand-by" unit for alternate use with engine-driven fuel pump shown at right.



PESCO ENGINE-DRIVEN FUEL PUMP (circled right, above)—for normal service supplying fuel to engine. Special feature of this pump is an automatic regulator valve, adapting it to changes in atmospheric pressures.



PESCO ENGINE-DRIVEN HYDRAULIC PUMP for generating pressure to activate wing flaps, landing gear and tail wheel on the Substratosphere Transport.



PESCO ENGINE-DRIVEN HYDRAULIC PUMP for operating the Sperry Automatic Gyropilot on the instrument panel.



PESCO ELECTRIC-MOTOR-DRIVEN HYDRAULIC PUMP, a "stand-by" unit for alternate use with engine-driven hydraulic pumps (Nos. 3 and 4).



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ATA Reports 11-Month Safety Mark by Airlines

At midnight on Feb. 26, domestic schedules airlines of the U. S. completed 11 months of operations without fatality to passengers, crew or anyone else, Col. Edgar S. Gorrell, president of the Air Transport Association, announced on Mar. 4.

During the 11 months, intra-U. S. lines flew 78,460,700 plane miles and carried 1,895,700 passengers a total of 737,450,000 passenger miles.

If one plane had done the flying, it would have made 29,720 trips across the continent, Col. Gorrell pointed out. If one passenger had done all the flying, he would have made 139,670 trans-continental round trips which would have required 621 years and 10 months of constant flying.

McGrath Re-elected President of Elmira Area Soaring Corp.

William L. McGrath, vice-president of Bendix Aviation Corp., recently was re-elected president of the Elmira Area Soaring Corp. at the annual directors meeting held at Elmira, N. Y. Other officers elected are: Vice-presidents—J. Arthur Mann, Youston Sekella, Earl R. Southee and Floyd J. Sweet; secretary—Edward A. Mooers; treasurer—Robert P. McDowell.

McDowell, Mooers, Sekella and Sweet were re-elected directors. Others are Herman G. Dunbar, Harry B. Furman, Capt. Shelly Charles, Mann, McGrath and Southee.

R. J. Minshall of Boeing Gets '40 Musick Award

Robert J. Minshall, vice-president in charge of engineering of Boeing Aircraft Co. of Seattle, Wash., has been awarded the Musick Memorial Trophy for 1940 following selection by a committee representing New Zealand, the Royal Aeronautical Society of Great Britain and the Institute of the Aeronautical Sciences.

Maj. Lester D. Gardner, executive vice-president of the institute, received a cablegram from New Zealand on Mar. 6 announcing Minshall as recipient of the award.

The award was established in 1938 by citizens of Auckland, N. Z., in memory of Capt. Edwin Musick and his six companions who were lost in mid-Pacific on the first commercial flight from the U. S. to New Zealand.

The trophy is for annual award to the individual in the U. S. or Great Britain who, in the opinion of the committee, makes the most valuable contribution toward the safety of life in the air with especial regard to trans-oceanic flying. Recipient has custody of the trophy for one year and also receives a miniature replica to keep permanently.

Minshall received the award for his contribution to the safety of trans-oceanic air transport through major engineering improvements in large flying boats. He was in charge of engineering and production of the Boeing Clippers used by Pan American Airways on its trans-Atlantic and trans-Pacific routes.

Last year's award went to Arthur Gouge of England, designer of the Short Brothers Empire Flying Boat.



Minshall

AIR RACES STILL IN THE AIR

Despite announcements from Newark that it would be host to the National Air Races this year, there is no decision as far as the National Aeronautic Association is concerned. The executive committee met Mar. 6 in Washington but no decision was reached. The committee is looking for a 10-year plan for the national classic and may look to Steadham Acker of Birmingham for a solution. In the meantime Cleveland has taken up the option to hold the races there in 1941. Where the 1940 races will be held is anybody's guess but they won't follow the traditional Cleveland pattern regardless of location.

Calendar

- Mar. 14-15—SAE's National Aeronautic Meeting, Washington Hotel, Washington, D. C.
- Mar. 15-21—Sportsman Pilots Association Cruise to New Orleans, La.
- Mar. 22-23—Regional Aviation Planning Conference for 10 North Central States, Omaha, Neb.
- Mar. 28-29—National Transportation & Maintenance Meeting, SAE, Mellon Institute Auditorium, Pittsburgh, Pa.
- Apr. 25-27—Air Congress of America, Southwest Division, Tulsa, Okla.
- May 1-3—American Society of Mechanical Engineers, Spring Meeting, Worcester, Mass.
- May 11-12—2d Annual Aircraft Exhibit of the Aero Club of Kentucky, Bowman Field, Louisville, Ky.
- May 27-28—NAA's National Aviation Forum, Washington, D. C.
- June 1-2—Birmingham Air Carnival, Birmingham, Ala.
- June 9—7th Annual Air Classic Sponsored by the Junior Chamber of Commerce, Port Columbus, Columbus, O.
- June 9-14—SAE's Summer Meeting, The Greenbrier, White Sulphur Springs, W. Va.
- June 9-23—3d Annual Southwestern Soaring Contest, Wichita Falls, Tex.
- June 17-21—American Society of Mechanical Engineers, Semi-Annual Meeting, Milwaukee, Wis.
- July 4-6—Air Show, Denver, Colo.
- July 7-10—First National Aeronautic Association Aviation Congress, Denver, Colo.
- Aug. 18-19—Air Show Sponsored by Sheldon Chapter of NAA, Roscoe Turner Field, Sheldon, Ia.
- Sept. 3-6—American Society of Mechanical Engineers, Fall Meeting, Spokane, Wash.
- October—Air Line Pilots Association, Annual Convention, Chicago, Ill.
- Oct. 7—Air Line Mechanics Association, Annual Convention, Chicago, Ill.
- Oct. 7-11—National Safety Congress and Exposition, Stevens Hotel, Chicago, Ill.

Norfolk Airport, PCA Dedication in Hanger

Dedication ceremonies for Municipal Airport, Norfolk, Va., and for Pennsylvania-Central Airlines' Capital Ship Norfolk took place on Mar. 3 inside the new \$400,000 hangar at the airport because of inclement weather.

Mrs. Charles Edison, wife of the secretary of the Navy, christened the plane by dotting the I's and crossing the T's of the craft's name with rust paint. This same method was employed by Mrs. Franklin D. Roosevelt when she christened PCA's Capital Ship Washington in January.

Dedication address was delivered by former City Manager Thomas P. Thompson under whose administration the airport project was launched in 1938. Prominent federal officials and Norfolk civic and business leaders attended the ceremonies which marked inauguration of 21-passenger Douglas DC-3 transport service for Norfolk.

PFA and Aero Chamber Would Reclassify Craft

The Private Fliers Association in a recent bulletin indicated that it is co-operating with the Aeronautical Chamber of Commerce on a plan to divide aircraft into the same categories as pilots—scheduled, non-scheduled, commercial, private and instruction—with severity of airworthiness requirements following accordingly.

"If adopted by CAA, the way will be clear to eliminate weight classes for private fliers, and, more important, cost of private airplanes in the long run should be reduced," the bulletin said.

Tulsa, Okla., to Be Aviation Mecca in April for 3rd Annual Conference

More than 500 registrations are expected for the third annual Southwest Aviation Conference to be held at Tulsa, Okla., Apr. 25, 26 and 27. Indications point to one of the largest aviation gatherings of this sort ever held. Although the conference embraces the eight states of Oklahoma, Texas, Louisiana, Arkansas, Colorado, New Mexico, Kansas and Missouri, there will be attendance of airline, manufacturing and other aviation leaders from all parts of the country.

Moss Patterson of Oklahoma City, president of the conference, has announced that Herald Westby of Tulsa has been made general chairman.

Among those who have accepted invitations to speak are Gill Robb Wilson, president of the National Aeronautic Association; Tom O. Hardin, chairman of the Air Safety Board; Clinton M. Hester, administrator of the Civil Aeronautics Authority; Grove Webster, chief of the CAA's private flying division; Thomas H. Beck, president of Crowell-Collier Publishing Co.; Col. John H. Jowett, president of the Aeronautical Chamber of Commerce; Carl B. Squire, sales manager of Lockheed Aircraft Corp.; Wayne W. Parrish, editor of AMERICAN AVIATION, and others to be announced later.

Among those who expect to be present for the sessions are Robert Gross, president of Lockheed Aircraft Corp.; Maj. Reuben Fleet, president of Consolidated Aircraft Corp.; Maj. Jimmie Doolittle of Shell Oil Co.; Charles P. Graddick, superintendent of air mail, Post Office Dept.; Maj. Al Williams of Gulf Oil Co.; Richard C. du Pont, president of All American Aviation Inc.; David Behncke, president of the Air Line Pilots Association, and Col. Roscoe Turner.

The Tulsa conference committee chairmen are: F. E. Bernsen, chairman aviation committee; G. H. Westby, general chairman; W. G. Skelly, speakers committee; Stanley J. Ehlinger, information and publicity; W. G. Green, program; Fred Casler, registration; Mather Eakes, transportation; Ted Law, reception; H. L. Smith, entertainment; Charles Short, airport; Fred E. Cooper, finance; and Miss Dorothy McBurney and Mrs. E. M. Wyatt, co-chairmen of the ladies activity committee.

General headquarters will be at the Mayo Hotel. A separate program is being worked out for women and the women's headquarters will be in charge of the Tulsa chapter of WNAA at the Hotel Tulsa.

Midwest Planners Meet On Mar. 22 in Omaha

Permanent organization of aeronautics interests in 10 north central states is anticipated at a regional aviation planning conference called for Mar. 22 and 23 at Omaha by the Nebraska Aeronautics Commission. The organization would be patterned after that now operative in the southwestern states.

States which have accepted invitation to attend the conference include, in addition to Nebraska, North Dakota, Kansas, Missouri, Iowa, Minnesota, Montana, Wyoming and Colorado. Subjects to be considered include airport zoning, legislation and feeder line development.

OKLAHOMA ACTIVE

Brazell Heads Aviation Club; Patterson Named C. of C. Chairman

James Brazell, 70-year-old flying veteran and oldest licensed pilot in the southwest, has been elected president of the Oklahoma City Aviation Club. Other officers are Herbert Howell, vice-president; Keith Kahle, secretary, and Clint Johnson, treasurer. Meetings are held twice monthly at the Huckins Hotel, Oklahoma City. Plans for an Oklahoma air tour in June are now being made.

Moss Patterson, Oklahoma bus line operator, has been named chairman of the aviation committee of the Oklahoma City Chamber of Commerce. Morris Lyons, local merchant, is vice-president, and Jack Hull, of the chamber, is secretary. Keith Kahle was appointed chairman of publicity.

20th Year of Schroeder's Altitude Flight Remembered

Tribute was paid to Maj. R. W. Schroeder, vice-president of safety for United Air Lines, on the 20th anniversary of his world record-breaking flight of 38,100 ft. by his co-workers at United. United's traffic representatives, passenger service men and advertising men were holding their 10th annual sales convention at the Stevens Hotel in Chicago at the time.

At precisely the same moment in the day that Maj. Schroeder brought his Army plane to a landing at Dayton, O., on Feb. 27, 1920, after soaring to the then astounding elevation of 38,100 ft., B. B. Gragg, director of sales, brought the convention proceedings to a halt and told the gathering of the significant anniversary moment. The audience of more than 125 men rose and burst into spontaneous applause that continued for several minutes.

NAA Resolution Opposed

Aviation manufacturing representatives on the board of directors of the southern California NAA chapter have gone on record "strenuously objecting" to a resolution adopted at the NAA's New Orleans convention which opposes change in present CAA regulations on take-off distances and "provisional overloads." The resolution disavowed by the officials requests the CAA to stipulate that 3,500-ft. runways with clear approaches for 20:1 glide ratio are adequate for any type of craft under normal sea-level conditions.



Schroeder

Aero-Auto Executive



Ernest R. Breech, chairman of the board of North American Aviation Inc., Inglewood, Cal., and vice president of General Motors Corp., is shown as he arrived at Chicago Municipal Airport on Mar. 1 aboard TWA's Sky Chief enroute from Los Angeles to Detroit. He declared that line production of aircraft in manufacture, cost and planning on the same principles followed in various automobile factories has been completely successful.

SPA READY FOR CRUISE

Western Wing Meets at San Antonio, Eastern Wing at Birmingham; Entertainment Planned

The 12th cruise of members of the Sportsman Pilots Association, consisting of members owning and piloting their own aircraft, will be held on Mar. 15. Members from nearly every point in the U. S. will rendezvous on that date, those from the east at Montgomery, Ala., and those from the west at San Antonio, Tex. Eastern wing will be under the direction of Harold F. Wood, Birmingham, Ala., and the western wing will be in charge of J. W. Beretta, San Antonio.

Extensive entertainment programs have been arranged at both of these points prior to the start of the cruise to New Orleans, La., on the 15th. All participants will arrive at New Orleans and will headquarter at Hotel Roosevelt. An elaborate program has been arranged for the party during the week's stay in New Orleans.

The SPA has accumulated an enviable record in sport flying in that upon completion of the current cruise, it will have recorded a recorded total in excess of 40,000,000 miles of flying without accident.

8 Join SPA

New members of Sportsman Pilots Association are Matthew D. Mackie, Scranton, Pa.; J. L. Hamilton, Charlotte, N. C.; Heber Sutton, Port Chester, N. Y.; Zack T. Mosley, Port Washington, N. Y.; Dr. L. O. Wilkerson, Bryan, Tex.; R. L. Stevens, Detroit, Mich.; Dudley T. King, Washington, D. C., and Robert Richardson, Laurens, S. C.

Texas Air Tour

Following the organization Mar. 2 at Liberty, Tex., of a Texas Private Pilots Association, plans were announced for a large air tour of Texas in May.

Call the G-Men

Private pilots aren't the only ones who can break CAA rules. Well over a year ago the Civil Aeronautics Authority adopted a ruling that no CAA official was to accept speaking dates without notifying the press section of the date and the occasion. No rule has been more overlooked and press people rarely have an advance inkling of CAA speeches. On Mar. 6 Clinton M. Hester, administrator; Welch Pogue, general counsel, and Tom O. Hardin, chairman of the Air Safety Board, all went to New York to address a bar association meeting. Not one of the three had notified the CAA press section.

Trend to Be Toward 4-Engined Planes, Lockheed Says After Survey of Pilots

Returns Show Tri-Motored Transports in Disfavor, Company Claims, With Majority Favoring 4 Engines for 25-33 Passenger Ships

Eighty-two per cent of airline pilots prefer two-engined transports for the 12- to 20-place airplane, and 88% prefer four-engined transports for planes carrying above 25 passengers, according to results of a survey made by the market research division of Lockheed Aircraft Corp., Burbank, Cal., just made public. The survey was in charge of J. V. Sheehan, manager of the market research division.

Although only part of the results were released at this time, the company asked 1,000 pilots and maintenance men of airlines all over the world what they preferred in transport airplanes. Another questionnaire was sent to 464 maintenance superintendents and department heads of domestic and foreign airlines asking advice on features for four-engined airplanes.

"Lockheed Aircraft wanted to know the answers," the release said. "Not just to be playing games, but as a progressive step toward a more thoroughly satisfactory airplane for tomorrow's airways."

Eighty-four per cent of those replying have had 10 years or more in the aviation industry in 24 different types of work. Many well known pilots, some in the Army and Navy, and a good representation of pilots and officials of foreign airlines, responded to the questionnaires.

"The survey placed the three-engined airplane definitely in the doghouse," the release said. "The tri-engined job was figuratively wheeled up to the Smithsonian Museum of Natural Relics when only 6% of the pilots could see it as a 12- to 20-place airplane and 7% desired it for use on the 20- to 25-place jobs. Only 3% favored it on the 25- to 33-place airplane."

"Eighty-two per cent of them desired two-engined planes for the 12- to 20-place airplane, on which 12% preferred four engines. On the 20- to 25-place plane just half wanted two engines and 44% desired four. Going up into the big 25- to 33-place de-luxers, only 9% thought that two engines would do the trick and 88% demanded four engines. Do you think Lockheed will turn out any flying Queen Mary's and equip them with only two engines? Not after that questionnaire."

"Speaking in broader, more general terms, 59% of the replies indicated an acceptance of the two-engined planes, while 41% thought two-engined types generally were 'undesirable.' When the vote showed 84% 'desirable' for

four-engined types, 16% opposed, and an overwhelming deluge of 90% descending like an avalanche upon the three-engined airplane, the Lockheed engineers were able to sit back in their chairs, blow a few smoke rings toward the ceiling, and visualize quite clearly the major airline transport of the next four years.

"The trend will be toward four-engined planes carrying from 30 passengers upward. The Lockheed engineers have been told by airline pilots and airline officials that this is the kind of plane they want, and it is the kind of plane that any sensible manufacturer, when told right to his face what his customer wants, certainly would go out and build."

The company said that only 23% of the pilots had ever operated an airplane equipped with a tricycle landing gear but that 89% stated a definite preference for this type of landing gear, with only 11% sticking to the conventional landing equipment.

On the question of radio controls, the opinion was overwhelming in favor of having all radio controls within reach of both pilot and co-pilot, and also that it is desirable to slope the lower portion of the instrument panel for more easy reading of the instruments without parallax.

In answer to a question as to the desirability of locating all warning lights in a row along the top of the instrument panel or located near their respective instrument or control lever, only 23% of the pilots cast votes for the centralized location, while 77% wanted all warning lights near their respective instrument or control lever.

The returns favored different colors on the various control levers as an aid to quick identification, but only 37% favored transparent panels in the roof of the flight station. It was not deemed an advantage to have fuel valves operated by levers instead of the conventional dial and pointer control, but the suggestion that large knobs be used instead of cranks for the tab controls found favor with 53% of the pilots.

Brake toe pedals were found desirable by a vote of 93% and to the question whether the nose wheel of a tricycle landing gear should be steerable by rudder pedals or free swiveling, the vote was 60% in favor of the first alternative.

Lockheed will release other details of the questionnaires pertaining to radio and telephone and powerplants, at a later date.

Pilots Dislike N.Y. Tax; Attorneys Investigate

An investigation into the constitutionality of the practice of New York state to collect income tax from non-resident airline pilots on a basis of their flight mileage over the state has been started by attorneys of the Air Line Pilots Association.

It was pointed out by a state tax department spokesman that the tax had been in force for several years but, with LaGuardia Field, New York City, now a principal airline terminal, there are now about 250 pilots liable for the tax.

Capt. Russell Black, TWA pilot, who is chairman of the New York council of ALPA, said the organization was prepared for a fight.

Mileage flown within the state boundaries varies from 12 by two companies to more than 700 by others.

CHENEY AWARD TO NEELY

First Lieutenant at Lowry Field to Be Honored for Act of Heroism in Army Bomber

First Lt. Harold L. Neely, Army Air Corps pilot at Lowry Field, Denver, Colo., has been selected to receive the Cheney Award for the outstanding act of valor in connection with aircraft in 1939, it was announced by the War Dept. on Mar. 1.

The act of heroism which prompted the selection of Lt. Neely to receive the honor occurred near Hill City, Kan., on Dec. 18, 1939.

He was piloting an Army bomber above a dust storm when both engines stopped, and after attempting to start the motors he called to his three passengers to jump. He saw two parachutes open and disappear. The third passenger also jumped, but from the closed-in pilot compartment it was not possible for Lt. Neely to determine whether the last man had cleared the bomber.

He decided then to take his chances on a forced landing, and flying blind through the dust storm, he descended to an altitude of 500 ft. before the ground became visible. Miraculously, Lt. Neely escaped injury as the plane skidded to a stop in a 40-mph. wind.

Details concerning the date the award is to be made and by whom it will be presented will be announced later.

Lt. Lee to Venezuela

Lt. Fitzhugh Lee, U. S. Navy, has been ordered to duty as naval attaché and naval attaché for air at the American Embassy, Caracas, Venezuela, according to a recent Navy Dept. announcement. Lt. Lee has been serving as executive officer of scouting squadron 5, attached to the USS Yorktown.

Nebraska Body Reorganized

The Nebraska Aeronautics Commission has been reorganized by Gov. R. L. Cochran so that one member will come from each of the five congressional districts in the state. At the same time the Governor reappointed Max Kier of Lincoln for a four-year term, and appointed two new members including Dr. D. W. Kingsley of Hastings and E. J. Robins of Fremont for terms ending Jan. 1, 1944. They succeed W. J. Hotz of Omaha and Dr. Orville A. Ralston of Valentine, whose terms expired recently.

Kindelberger's Son Injured

A son of J. H. Kindelberger, president of North American Aviation Inc., who was seriously injured at his school in the west, remained in a dangerous condition as this issue went to press.

NAA Forum May 27-28

The National Aviation Forum, sponsored by the National Aeronautic Association, will be held in the Commerce Dept. auditorium, Washington, D. C., May 27 and 28, according to Thomas Beck, president of Crowell-Collier Publishing Co., who is heading the arrangements committee. Beck recently was received by President Roosevelt who has promised his support of the forum program. The first forum was held in Washington in Feb. 1939.

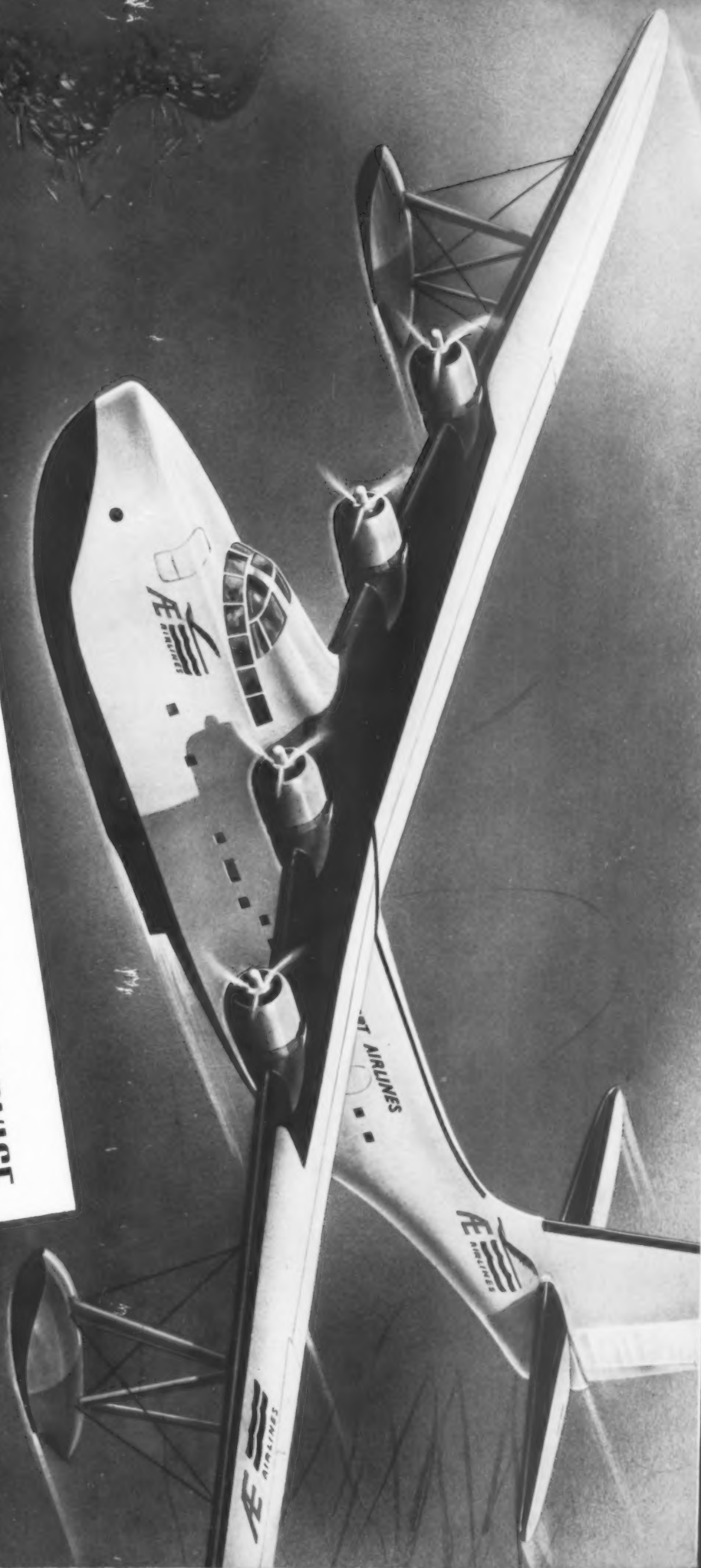
Orville Wright Honored

Orville Wright was one of 29 outstanding American inventors honored Feb. 27 at a dinner in New York City by the National Association of Manufacturers.

Aero Club Flies to Swim

Unusual Aero Club is the chapter of Portland, Ore., sporting a swim team that holds various aquatic records, city, state and regional. The team travels by plane to competitive meets, the athletes being from families of Aero Club members.

Swimmers were organized some two years ago by Albert J. Sehorn, former star of the Olympic Club of California at San Francisco. The Aero Club is a member of the Amateur Athletic Union and as such will compete with many Pacific northwest college and athletic teams during the year.



New Wings FOR THE ATLANTIC SERVICE

To assure its patrons luxury non-stop service in spanning the Atlantic, American Export Airlines has placed an initial order for three giant Vought-Sikorsky's. Known as the VS-44-A, this new type embodies the sound engineering principles developed in its many pioneering predecessors... plus new standards of aeronautical performance and passenger comfort. Powered by four Pratt & Whitney Twin Wasp engines

driving Hamilton Standard Hydromatic Propellers, these over-ocean transports will represent the latest word in luxury equipment for the transatlantic route.



UNITED AIRCRAFT CORPORATION
One of the three divisions of



Assurance in Concrete

Within these walls is the largest and most complete group of propeller testing facilities in the world. Specially designed and solely used for propeller testing, these new laboratories will enable Hamilton Standard to test propellers for engines up to 5,000 horsepower!

Here, tomorrow's propellers are passing through the most rigorous tests that science can devise...assurance that the advancing requirements of performance and safety will find Hamilton Standard prepared to maintain its world-wide reputation for propeller achievement.

HAMILTON STANDARD PROPELLERS

One of the three divisions of **UNITED AIRCRAFT CORPORATION** *East Hartford, Connecticut*

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Great Britain Orders \$20,000,000 Worth of Douglas Attack Bombers

Planes Will be Similar to Those Constructed for France;
Contract Will Not Interfere With Army or Navy
Programs or With Commercial Production

Contracts calling for the construction of \$20,000,000 worth of attack bombers for Great Britain have been placed with Douglas Aircraft Co. Inc., Donald W. Douglas, president, announced on Feb. 27.

The craft will be of a type similar to those built by Douglas for the French state. They will be manufactured at the Santa Monica, Cal., plant of the company where nearly 12,000 of the company's 15,000 employees are now working three shifts.

It was unofficially reported that the contract involves some 200 bombers.

The British bombers will be all-metal, twin-engined, high-wing, three-place monoplanes with tricycle landing gear, fully retractable in flight. They will be powered by Wright 2600 engines and "are expected to supply performances never before obtainable in aircraft of such size and weight," the announcement said.

The order will provide close to 5,000,000 additional hours of labor for Douglas employees, Douglas said.

Deliveries on the order are scheduled to begin late this year and end in the summer of 1941.

"In accordance with the established Douglas policy of allocating preferential production to U. S. government and commercial airplane needs, negotiations for this contract were completed with the full knowledge and coordination of the U. S. government officials assigned to the task of preserving national interest in the aircraft industry," Douglas said.

The British order, he explained, will in no way interfere with the Army Air Corps and Navy procurement programs, nor will it be permitted to delay production and deliveries of commercial air transports now constituting approximately 20% of the company's unfinished business.

W. H. Lewis Resigns As Douglas Comptroller

Resignation of William H. Lewis as comptroller of Douglas Aircraft Co. Inc., Santa Monica, Cal., was announced recently by Donald W. Douglas, president. He said he accepted with regret the resignation which was effective Feb. 26. In Apr. 1939 Lewis was elected to the company's board of directors.



Lewis

Herman Grube, treasurer and Douglas official since 1923, will temporarily assume the duties of Lewis.

Lewis has been with the company since 1937. His retirement Douglas said, was entirely of his own volition and does not foreshadow any immediate change in the department. In leaving the company, Lewis made no announcement of his plans for the future.

Capt. Fitch Heads Hawaii Air Defense

The Navy Dept. on Mar. 4 assigned Capt. Aubrey W. Fitch, commandant of the Naval Flying School at Pensacola, Fla., to command the big bombers which constitute the naval air defense of Hawaii. He will relieve Capt. Kenneth Whiting, commander of patrol wing 2 at Pearl Harbor, which includes five squadrons of long-range Consolidated patrol bombers.

Capt. Fitch is a native of St. Ignace, Mich., and entered the Naval Academy in 1902. In the World War he was gunnery officer of the U. S. S. Wyoming.

Maj. George to Selfridge

Maj. Harold H. George, Army Air Corps, who has been in command of the 94th pursuit squadron, 1st pursuit group, since July 28, 1938, recently assumed command of the newly organized 31st pursuit group, Selfridge Field, Mich. Capt. John N. Stone took command of the 94th pursuit squadron.

Mfrs., Representative of Allies Will Confer; New Orders Reported

Arthur B. Purvis, head of an Allied purchasing mission, said on Mar. 8 he will confer in mid-March with U. S. aircraft manufacturers in New York City on new Allied plane orders which may run close to \$1,000,000,000, according to announcement by the Aeronautical Chamber of Commerce. Purvis said he had no fixed idea on the type of planes to be purchased or whether purchases would be limited to a few standardized types of craft.

Reports were circulating in Washington on Mar. 8 that Rumania may place orders for American aircraft. A new military air official has recently arrived in this country from Rumania and it is understood the country is interested in bombers, and possibly pursuit planes.

Earlier it was reported that Belgium soon would conclude negotiations for the purchase of 150 bombers and reconnaissance planes in the U. S. It was understood that delivery would be made quickly inasmuch as the craft stood complete in U. S. factories ready for shipment.

Published reports on Mar. 8 asserted an undisclosed number of planes have been ordered from Douglas Aircraft Co. Inc. by Iraq. Quoted were four representatives of that government who arrived in Jersey City from Baghdad.

11 Firms Join Assn.

The following companies became new members of Manufacturers Aircraft Association Inc. during 1939, it was reported recently: Air Associates Inc., Barkley-Grow Aircraft Corp., Beech Aircraft Corp., Bell Aircraft Corp., Brewster Aeronautical Corp., Howard Aircraft Corp., Kellett Autogiro Corp., Northrop Aircraft Inc., Piper Aircraft Corp., St. Louis Aircraft Corp. and Taylorcraft Aviation Corp. Office of the association is at 30 Rockefeller Plaza, New York City.

Switlik Moves

Switlik Parachute & Equipment Co. has announced its removal in Trenton, N. J., to larger quarters at Lalor and Hancock Streets.



That KEEPS FIRE AWAY from Engines

Don't give fire an even chance in an airplane.

The airlines know the answer. They can snuff out an engine blaze in 3 seconds. 9 out of 10 U. S. airliners carry, in motor compartments, a slender metal ring which blasts a blizzard of carbon dioxide snow into every inch of space. And fire can't live.

The planes of today—safest in history—are increasingly safer with the adoption of LUX Airplane Fire Extinguishing Systems as Standard equipment.

Fast, Sure, Fire Extinguishing

Lightning-fast in killing fires, LUX is harmless to engine, plane, pilot or passengers. At 30,000 feet . . . at 350 miles per hour . . . LUX snuffs out engine fires without fuss or wasted motion.

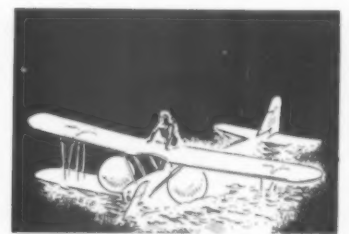
Flame Detectors give immediate warning the instant fire appears. The pilot pulls the LUX release. Fire's out in 3 seconds.

Today more airliners, more private planes, more U. S. Army and Navy planes are protected by LUX than by any other type of built-in fire extinguisher.

Why not send today for full information on the LUX method of fighting airplane engine fires? Write right now.



OXYGEN EQUIPMENT—Walter Kidde engineers have developed suitable cylinders and valves used in oxygen equipment for high altitude flying. A recent and extremely successful development.



FLOTATION GEAR—Air-tight bags are placed in wings and fuselage for over-water flights. In event of forced landing on water these bags automatically inflate in a few seconds by means of carbon dioxide cylinders . . . keeping plane afloat.

Walter Kidde & Company
Incorporated



339 West Street

Bloomfield, N. J.

Air Transport Fleet

(Continued from page 1)

200,000 at an average cost of \$120,000 each; seven DST's costing about \$125,000 each total around \$875,000, and four Lockheed Lodestars at \$95,000 each cost a total of \$380,000. Only three manufacturers are involved in this year's orders, and of the 76 new planes, Douglas Aircraft Co. Inc., is building 67. The new and popular Lockheed Lodestar, however, is expected to get important domestic orders later this year.

Increase of available seats for sale is bringing about a substantial increase in the payrolls of almost every airline. As an example of how these increases will even out-pace the percentage in fleet additions, TWA will increase its employees from 1,300 average of 1939 to 2,000. About 400 of this additional 700 is traceable directly to the five new Boeings which will go into service this summer. With an average family of three for every employee, TWA will add to the national purchasing power by no small sum.

United Air Lines, which employed over 2,000 in 1939, will add about 650 during 1940 of which 200 already have been put to work. The company said it anticipates about 60 additional mechanical personnel and 48 new flight personnel to be employed for the seven new DC-3's being delivered this year. The company figures a family of two for each employee.

American Airlines will hire about 660 new employees. To man its new equipment, American expects to hire five new co-pilots for each airplane and at the same time promote two and one-half pilots to the rank of captain for each plane. About two and one-half stewardesses per plane will be hired, while 10 new me-

chanics will be required per new ship plus 10 others in assorted occupational capacities. About half of this estimated number already has been hired and in training, according to Ralph S. Damon, vice-president in charge of operations.

A growing problem for all lines is where to get pilots. In former years the lines relied largely upon Army and Navy sources, but now they are taking pilots from commercial sources and setting up training schools. American, for example, set out in January to hire about 130 pilots, many of which are now in training. Sixty per cent of these are coming from the Army and Navy services, the remainder from commercial ranks. The Navy supplies slightly more than the Army.

American figures each employee represents about three and a half dependents, hence the increase in purchasing power made available by the company during 1940 is considerable.

Braniff Airways has hired more personnel to handle the increase in equipment, 12 pilots being hired because of the new DC-3's alone.

New spring schedules are going into effect on many lines. Delta's new DC-2 equipment between Atlanta and Ft. Worth, and Chicago and Southern's new DC-3 equipment to be introduced between Chicago and New Orleans May 1, are rating considerable newspaper space. Penn-Central's new DC-3 ships already have made a smash hit with passengers in the east. On Mar. 1, TWA boosted its schedules 27% and this increase was fairly typical of the industry as a whole. TWA may surpass the industry when it puts its new 33 passenger Boeings into service.

Air Transport Equipment for 1940 Delivery

	Boeing 307	DC-3	DST	Lockheed Lodestar	Totals
American Airlines		24	2		26
Braniff Airways		8			8
Chicago & Southern Air Lines		6			6
Continental Air Lines				1	1
Eastern Air Lines		3	3		6
Mid-Continent Airlines				3	3
Northwest Airlines		4			4
Pennsylvania-Central Airlines		10			10
Transcontinental & Western Air ..	5				5
United Air Lines		5	2		7
Totals	5	60	7	4	76

Note: Of these planes the following were delivered by Mar. 1:
American 5 DC-3's
Braniff 4 DC-3's
Eastern 3 DST's
Northwest 3 DC-3's
Penn-Central 6 DC-3's
United 2 DC-3's

Air Transport Equipment in the U. S.

Reported to the CAA As Being in Operation Dec. 31, 1939

Airline	Boeing 247-D	DC-2	DC-3	DST	Lockheed	Lockheed	Lockheed	Stinson	Other*	Totals
American Airlines		13	33	11		10	12	14	A	57
Boston-Maine Airways					3				3	6
Braniff Airways		6			5					11
Chicago & Southern Air Lines					5					5
Continental Air Lines						3	2			5
Delta Air Lines					6 ¹					6
Eastern Air Lines		10	17 ²							27
Inland Air Lines	6									6
Marquette Airlines								3		3
Mid-Continent Airlines					5 ³				3	8
National Airlines					4			1		5
Northwest Airlines			7		7					14
Pennsylvania-Central Airlines	14									14
Transcontinental & Western Air ..		14	12	10						36
United Air Lines	15		26	9						50
Western Air Express	6 ⁴		1	2					1	10
Totals	41	43	96	32	35	3	2	4	7	263

¹ One Electra rented.

² Two DC-3's rented.

³ One Lockheed 10 rented.

⁴ Two Boeings rented.

* Boston-Maine has 2 Stinsons, 1 Beechcraft; Mid-Continent has 1 Lockheed Vega, 2 Wacos (1 rented); Western Air has 1 Waco.

February Traffic Shows New Increases

As in January, passenger traffic on domestic airlines in February established new percentage increases, breaking away from the usual winter slump. February figures from most of the lines indicated gains over both Feb. 1939 and Jan. 1940.

Largest increase over Feb. 1939 was reported by Canadian Colonial Airways which experienced a 530% increase in revenue passengers. Additional increases in revenue passengers, Feb. 1940 over Feb. 1939, follow:

Northwest Airlines, 159.9%; National Airlines, 120%; Western Air Express, 89.59%; United Air Lines, 66% (revenue passenger miles); Eastern Air Lines, estimated 60%; Chicago and Southern Air Lines, 51.1%; Pennsylvania-Central Airlines, 40.06%.

N. Y. Terminal Enlarged

The space to be occupied as a terminal for the five airlines in the new building under erection at Park Ave. and 42nd St., New York City, has been doubled. One floor will now be used for incoming passengers and another for outgoing. The structure will be five stories high, equal to an ordinary seven-story building.

Work Rushed to Rebuild NY Hanger Destroyed by Fire While TWA Waits

Work is being rushed to rebuild a portion of hangar No. 4 at LaGuardia Field, New York City, which was partially destroyed by fire on Mar. 5 causing a damage estimated at \$150,000-\$250,000 to the \$1,300,000 building which was to have been leased on May 1 by TWA. Officials now believe, with prompt deliveries, that the structure will be completed by June 15.

Cause of the fire has been tentatively laid to a lighted pipe carelessly left in a workman's overalls in a locker room inside of the hangar which was six weeks from completion. Mayor F. H. LaGuardia and Col. Brehon B. Somervell, WPA administrator, said that no insurance was carried either by the federal government or the city which would cover the fire loss.

Knight to Safety Board

Henry L. Knight, formerly with the airport section of the old Bureau of Air Commerce, has been appointed examiner on the legal staff of the Air Safety Board.

EAL Inaugurates NY-Brownsville DST Service



Eastern Air Lines on Feb. 27 inaugurated direct without-change-of-plane service on its New York-Brownsville run to the International border, where connection is made with Pan American Airways for Tampico, Mexico City and Central America.

Leaving New York shortly after dinner on the newly christened sleeper plane, the Mexico Flyer, passengers arrive in Brownsville in time for breakfast, in Mexico City in time for lunch. On the northbound flight, passengers leave Mexico City at 1:20 pm., arriving in New York City the following morning.



EAL recently took delivery from Douglas Aircraft Co. Inc. on three DST sleeper planes at a cost of \$366,000. These 14-passenger planes are being used in the newly inaugurated service.

Top photo shows the large crowd at Washington Airport on Feb. 28 at the christening of the Mexico Flyer by Senorita Erma Castillo Najera, daughter of the Mexican ambassador. Two 5,000,000-candlepower searchlights, supplied by the National Guard, lighted the field for the ceremonies as Mexicans in native costumes serenaded the crowd.

Lower photo shows Senorita Najera, the Mexican ambassador (center) and Thomas Burke, chief, international communications division, State Dept., who delivered a message from Secretary of State Hull, speaking briefly over a radio hook-up with the Senorita, the ambassador and Paul Brattain, EAL's general traffic manager.

Charley Froesch, chief engineer for Eastern, was interviewed by Announcer Frank Blair of Mutual Broadcasting System on details of the transport's construction.

Brewster



AN OLD NAME ACHIEVES NEW DISTINCTION...

With **G-200 CYCLONES**
FOR THE NEWEST *Navy* FIGHTERS



The name of Brewster has been known since 1810 as a symbol of quality and achievement, first in fine carriages, then in custom automobile bodies. But certainly even James Brewster, the founder, could never have foreseen that his name would one day be carried aloft from the decks of aircraft carriers.

Brewster Fighters for the U. S. Navy are bringing a new distinction to the honored old name, and it is noteworthy that all Brewster models have been powered exclusively by Wright Aircraft Engines.

Of the many Wright Cyclone-powered Navy ships, the newest Brewster Fighter is the first to be powered by the 1200 h.p. G-200 series engine, and combines a new high performance with the reliability assured by the production of over 10,000 Cyclones and by more than 500,000,000 miles of Cyclone operation by the airlines.

WRIGHT AERONAUTICAL CORPORATION
Paterson New Jersey
A Division of Curtiss-Wright Corporation



WRIGHT *Aircraft* **ENGINES**

Chicago & Southern to Reach National Audience with DC-3 Fleet Promotion

30 Radio Stations, Cooperative Magazine Advertising and Billboards to Be Used for New Ships; No Christenings

Chicago and Southern Air Lines has launched an ambitious program of advertising, much of it national, as a prelude to its introduction on its Chicago-New Orleans route May 1 of Douglas DC-3 transports, replacing the current Lockheed Electra equipment.

Being a small line with modest advertising budget available for promotion, the company was faced with a task not easy these days of obtaining national attention for a change to larger equipment. George E. Bounds, the C & S publicity and advertising chief, solved this difficulty by enlisting the support of fuel and equipment concerns in a program of cooperative advertising, much of which costs the airline nothing and which benefits both the vendor and the line.

Few aviation companies have been prosperous enough to advertise in *Fortune*, but Chicago and Southern will have a page in the April issue through the cooperation of 32 manufacturers whose equipment has been specified by the company. The page ad costs \$1,680 but the per-company cost is small. Bounds is having four-page reprints made with a *Fortune* cover and an article entitled "Open the Throttle" for distribution to air travel agents throughout the country.

Nearly 15,000,000 readers of *Life*, *Saturday Evening Post*, *Colliers* and *Liberty* will read about Chicago and Southern through Sinclair Refining Co. ads featuring the airline's use of Sinclair products. Douglas Aircraft Co. is featuring C & S in its ads appearing in *Time*, *Newsweek*, and *Nation's Business*. Bounds has prepared half-page and one-third page ads for his company to appear in May issues of *AMERICAN AVIATION*, *National Aeronautics*, *Airplanes*, *Sportsman Pilot*, *American Business* and a number of regional publications reaching the mid-west valley area.

An unusual feature, especially for airlines, will be the use of 30 radio stations in middle-western states. A series of dramatized radio programs have been recorded to tell the story of C & S's rapid growth. The electrical transcriptions are for 15-minute periods.

Streamlined painted billboards will be erected near Chicago and St. Louis airports to announce the new service, and 25 poster locations on Chicago's elevated system also will be used. The newspaper advertising campaign will

reach all cities served along the route, while Shell Oil Co. will cooperate in Chicago and St. Louis newspaper advertising.

Other national tie-ups now in process of completion include a network radio broadcast and national publicity in Gruen Watch Co. advertising. A direct mail campaign also will be utilized.

One thing that will not be done, Bounds said, is to include the usual airport launching or christening. "We are anxious to tell our story, start our schedules with new equipment, and then take care of the passengers," he said. Concerning the need for national publicity for a connecting carrier, Bounds said:

"That word connecting carrier should be tabled. Patrons of air travel no longer consider the service and efficiency of an airline by the number of miles flown. After all, because of interlocking interests we are all part of a vast network of services, in business to promote the welfare of our patrons. Records of the past two years prove conclusively that the entire country is Chicago and Southern's market."

"The service to be rendered by C & S is far reaching in building business for all airlines, and likewise all carriers give C & S a vast portion of its passenger revenue. Therefore, we feel a national advertising campaign will help sell our service and new Douglas equipment to travelers everywhere. There is a definite market for our north-south service."

Chicago and Southern, of which Carleton Putnam is president, began in 1933 with five-place Bellancas. It was then known as Pacific Seaboard. On being awarded Air Mail Contract No. 8, the company moved to Memphis and placed tri-motored Stinsons in service. In 1936 10-passenger Lockheeds were introduced. With the new DC-3's, three schedules each way will be operated daily.

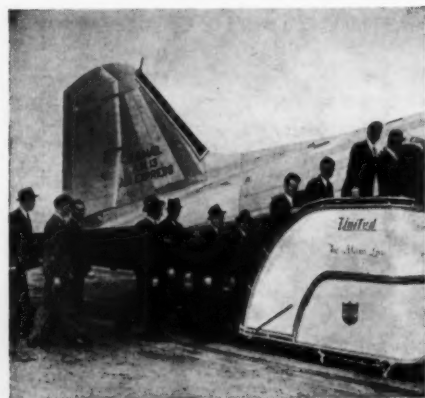
The company has maintained headquarters in St. Louis for some years but will move back to Memphis late in the spring or early summer.

Newark to Demolish Hangar

TWA has been notified by the City of Newark to vacate the municipal hangar which it has occupied at the east side of Newark Airport. The building will be taken down, having been sold for \$1,366.

Advertisement

OFF TO A FLYING START



Training completed on Monday...flown to a famous aircraft builder on Tuesday. Such swift placement of Aero ITI-trained men is not unusual. On previous occasions they have been sent by plane at the urgent request of Aviation industry employers... but normally there is a regular flow of trained mechanics and engineers from Aero ITI into the industry. For information on Aero ITI training, write to: Aero Industries Technical Institute, 5238 W. San Fernando Road, Los Angeles, Calif.

C & S Will Be Ready May 1



Chicago and Southern Airlines on May 1 will inaugurate Douglas DC-3 transport service on its "Valley Level Route" between Chicago and New Orleans and will offer stewardess service for the first time. Miss Dorothy Travis, recently appointed chief stewardess of C & S, is shown above. The advertisement shown at top right will appear in the Apr. 1 issue of *Fortune* as a part of the line's extensive advertising and promotional campaign prior to inauguration of service with the new 21-passenger transports. Capt. V. L. Hoganson, below, is shown in the pilot's compartment of the City of Memphis, one of the company's six new ships.



United Prepares Planes for Instrument Landing Systems at 6 Airports

United Air Lines has begun installation of instrument landing receivers and special loop antennas in six of its transports in preparation for their use on six of the 10 airports to be equipped with radio beam glide path systems by the CAA.

The six airports on United's routes which will be equipped with the new instrument landing approach by the CAA are LaGuardia Field, New York; Municipal Airport, Cleveland; Municipal Airport, Chicago; Municipal Airport, Oakland; Mines Field, Los Angeles; Snohomish Field, Seattle. The four airports to be equipped which are not on United routes are at Washington, Atlanta, Ft. Worth and Kansas City.

No request for bids on the instrument landing systems, which United experiments helped develop, has as yet been forthcoming from the CAA. (See *AMERICAN AVIATION*, Feb. 1.)

With announcement of plane equipment installation, J. A. Herlihy, vice-president of operations for United, reported that all of United's chief pilots, flight supervisors and many senior captains already have qualified for instrument landings and the entire pilot personnel will be trained by the time the CAA transmitters are installed in the fall.

Sleeper Service for Boston

American Airlines on Mar. 4 began sleeper plane service between Boston and Los Angeles, inaugurating this type of service from the Massachusetts capital. At the same time American initiated one-stop service in each direction between Chicago and Boston, the stop being at Buffalo.

Reed Landis Elected AA Vice-President

Reed G. Landis, for many years active in aviation and son of Judge Kenesaw M. Landis, has been elected a regional vice-president of American Airlines. Until his election he was manager of the corrugated division of Box Makers, Inc.

Born in Ottawa, Ill., in 1896, Landis served 18 months overseas as a pilot in the World War. He commanded an American pursuit squadron and was decorated by the American, British and Italian governments for his work. He was a major when he received his discharge.

Active in civic affairs, he has been secretary of the Chicago Aero Commission; chairman of the Illinois Aeronautics Commission; chairman of the national aviation committee of the American Legion and an active member of numerous aviation organizations.

EAL Rings the Bell

Bringing a musical note into airline operation, Eastern Air Lines has installed a set of Deagan pipe organ chimes at its Newark Airport and Miami 36th Street Airport passenger terminals. They are of the same kind installed in pipe organs in nearly every country in the world and are a product of J. C. Deagan Inc., Chicago, world's largest builder of bells, chimes and carillons.

The chimes at Newark Airport begin playing automatically as the airport limousine coach bearing passengers from New York City arrives at the station. Playing continues until the departing plane takes off. Chimes also play as passengers deplane and leave for New York City via the limousine coach.

IT PAYS TO *FLY DOUGLAS*



A Priceless Ingredient of Airline Success
Is the PASSENGER CONFIDENCE Douglas Airplanes Inspire

FIRST AROUND THE WORLD



...NOW THE WORLD OVER

LOOK TO THE



FOR QUALITY

Radio Ignition Engine and Auxiliary Shielding • Spark Plug Shieldings • Multiple Circuit Electrical Connectors • Flexible Shielding Conduit and Fittings • Conduit Junction Boxes • Cartridge Engine Starters • Flexible Shaft and Case Assemblies • Aeroflex Jr. Flexible Instrument Lines • Tachometer, Fuel Pump and Remote Control Drives • Ammunition Rounds Counters • Radio Tuning Units • Generator and Ignition Filters • Engine Primers, Single or Multiple • Exhaust Gas Analyzers (Fuel-Air Ratio Indicators) • Flexible Tubing of Stainless Steel, Aluminum, etc. • Resistance Type Thermometers • Swaging Machines and Hand Swaging Tools.

Stainless Steel Division: Pioneers in the design and development of stainless steel structures and fabricated products.

BREEZE CORPORATIONS, INC.
NEWARK NEW JERSEY

Tom Hardin

(Continued from page 1)

void of disastrous stalling characteristics—not tomorrow or next year or some other time in a dreamer's future, but right now."

Hardin quoted testimony of Dr. Vannevar Bush, NACA chairman, given before a committee in the House of Representatives last December. The quotation follows: "A research program is under way leading to the development of a private-owner type of airplane that will have greater inherent safety, in that it will be spinproof. The results are encouraging and we hope that by this time next year there will be a number of airplanes available which can properly be called spinproof."

Indication that the CAA is about ready to take definite action to encourage built-in safety in future construction of aircraft designed for use by the private flyer was noted by Hardin. "This calls for nothing new or unknown; it simply contemplates the requirement that known and proven safety features can be incorporated in the fundamental design of such aircraft," Hardin said.

KLM's 'One-Way' Glass

To meet with a regulation that passengers must not be allowed to see out, KLM, Royal Dutch Airlines, has adopted "one-way glass" for the windows of its Douglas DC-3's operating over the European war area, according to *The Aeroplane*. The glass does not keep light from the cabin, and so passengers are not subjected to a "black out." However, the glass leaves the interior of the cabin faintly visible from the outside.

Little Leaves RCA to Join American as Radio Engineer

David S. Little, who has been in charge of aviation activities of RCA Manufacturing Co. Inc., Camden, N. J., has joined American Airlines as radio engineer in the communications department, it was announced recently by James G. Flynn, AA's superintendent of communications.

Little will be located at LaGuardia Field, New York City, in his new capacity.

Crew of 6 on EAL's DC-4's

When Eastern Air Lines begins operating 42-passenger Douglas DC-4 transports early in 1941, the crew will consist of a commander, captain, pilot, flight engineer, chief flight-steward and flight-steward, it was learned on Mar. 2. With the advent of the flight engineer a new profession will be established in the domestic air transport industry. It will be the flight engineer's duty to supervise the mechanical operation of the craft in flight.

Departmental Manager

J. Stuart Rioridon, who has been with the sales organization of American Airlines since 1937, has been appointed manager of the agency department in Chicago. When he entered the organization he was placed in charge of sales promotion. He remained in that position until 1939 when he was transferred to the Chicago district sales office.



Railway Express Certificate Not Necessary, Proposed Report Says

CAA Examiner Law Finds Company an Air Carrier, Entitled to 'Grandfather' Permit, but Points to Disadvantages of Issuance

Long-awaited action on the important Railway Express Agency case was forthcoming Feb. 28 with issuance by CAA Examiner F. A. Law of a proposed report recommending that, although REA was an air carrier during the "grandfather" period and is entitled to a certificate of convenience and necessity, it should be relieved of the necessity of having such a certificate.

Numerous airlines had, at the REA hearing and by filing of briefs, engaged in what Examiner Law termed a "spirited controversy" over whether REA was entitled to a certificate. Consensus of opinion was that REA was not an air carrier as defined by the Civil Aeronautics Act, and therefore should not receive a certificate.

Briefs were filed by TWA, Eastern, American, United, Continental, Mid-Continent, Grover Loening and Guy Sherman Paschal. United favored issuance of a certificate restricting REA to the type of service performed during the "grandfather" period. Some airlines have expressed the fear that if REA were granted a certificate it could operate aircraft and parallel every U. S. route. At the hearing, REA stated that it had no intention to operate aircraft.

Specifically, Examiner Law's recommendations were (1) REA is and was from May 14 to Aug. 22, 1938, an air carrier, and its service was not inadequate or inefficient; (2) "that during such period applicant indirectly and continuously engaged (except as to interruptions of service over which it had no control) in air transportation of property, utilizing the space available therefor in the aircraft operated by other air carriers, between all of the terminal and intermediate points served by them."

(3) "that it is in the present public interest to withhold the issuance of certificates of public convenience and necessity to, and to relieve of the need therefor, air carriers of air express who are not directly engaged in the operation of aircraft in air transportation;" (4) "that the application herein should be dismissed without prejudice and with the provision that the Authority shall retain jurisdiction of the application to set aside this action and take further proceedings if future developments justify that course in the appropriate execution of its duties under the Act."

The report pointed out that REA has contracts with all airlines and that such contracts are subject to approval or disapproval under the Civil Aeronautics Act. "It is then of little moment whether the further machinery of issuance of a separate certificate . . . function to again authorize that to be done which by action on the contracts may already have been directly authorized," it said. "On the contrary, it seems plain that the power to waive the application of the provisions of the Act in such circumstances was conferred upon the Authority with the uselessness of such procedure clearly in mind."

Examiner Law also explained that REA's contracts with the airlines are now being investigated by the CAA, and that issuance of a certificate would carry with it, at least by implication, approval of the contracts.

On the controversial question of whether REA is an air carrier, Law stated that "it was definitely in the mind of Congress that the actual operation of aircraft was not essential to dent.

bring an air carrier within the terms of the Act." There is nothing in the Act that would evidence an intention of Congress to abandon the policy of regulation of express companies, he said. "On the other hand, the language of the Act . . . is clearly susceptible of an interpretation which would include the applicant as an 'air carrier,'" he added. "Among the declared purposes of the Act is the regulation of air commerce. Certainly the shipments of the carriers move in air commerce, and this applicant indirectly participates in such movement. Regulation would be incomplete if it failed to reach persons so situated."

Notwithstanding the fact that REA is an air carrier and entitled to a "grandfather" certificate under section 401(e) of the Act, it does not follow that such a certificate must be issued, Law said. "While that section appears compulsory upon its face, it can and must be considered in the light of all the provisions of the Act and the particular situation involved," he explained.

"The broad general purpose of section 401(e) appears to be to assure that air carriers which operated continuously during the 'grandfather' period . . . and who made timely applications for the right to continue operation as conferred by certificate . . . shall receive that right. Whether such right be assured by formal instrument issued to the individual does not appear to be of great importance either from the point of view of statutory construction or of practical effect, however, if by other means, the assurance can be lawfully given with equal firmness and finality."

From a purely practical point of view, the report said, the preferable course would be to relieve REA of the necessity for a certificate. In support of this view, the following reasons were advanced: (1) the nature of REA's business is such that continuous modification of its certificate may prove necessary; (2) its tariffs could not remain stable; (3) the flexibility of its operations would be hampered.

(4) a multiplicity of applications for amendment requiring action of the CAA looking to extension, contraction or other modification of the service points and requirements to comport with contemporary changes in the airlines would follow; (5) REA's service is only complementary to the primary undertaking of the airlines with which it has contracted for transportation of its air express; (6) such contracts pursuant to their terms and with the approval of the CAA may be canceled; (7) an order has been instituted by the CAA for a general investigation of such contracts.

"There is ample precedent for not issuing a certificate . . . to this applicant in the policy established under the Interstate Commerce Act," the report stated. "There Congress did not provide for the issuance of such certificates."

Braniff Takes Office

Houston, Tex.—Braniff Airways recently took over an office in the Rice Hotel formerly occupied by M-K-T Railroad after remodeling and redecorating was completed under the supervision of Miss Jeanne Braniff, daughter of T. E. Braniff, the company's presi-



The Birdmen's Perch

Back in December we promised to print an Honor Roll of those Perch fans who sent in solutions to a "tricky" (or so we thought) problem. We expected answers by the dozen . . . we got hundreds! The partial list below is only the beginning; next month we hope to print the balance. We're mighty happy though somewhat stunned by the whole business. *Congrats to all!*

"Tattered Wing-Tips," Editor, The Birdmen's Perch, Room 3800, Gulf Bldg., Pittsburgh, Pa.

ONCE BITTEN . . . TWICE SHY DEPT.

Below is a problem sent us by George W. Prediger, of Valhalla, New York. If you'd like to know the correct solution, we'd be glad to mail it to you.

Important, N.B., Attention. We will not contract to publish an Honor Roll on any problem from now on. Forever. No kidding. Even if it has no answer. You are much too smart. The next time we would



probably have to move off the Perch to make room.

At a recent air meet there were assembled 100 planes of three sizes.

There was also a fellow whose mission in life is creating problems for Perch puzzle fans. He had with him a supply of that original lubrication-problem solver, Gulfpride Oil.

To the pilots of the Class X ships, he gave ½ gallon.

To the pilots of the Class Y ships, he gave 10 gallons.

To the pilots of the Class Z ships, he gave 50 gallons.

All in all he distributed 1000 gallons. How many ships of each class were there?

DR. WING-TIPS' TASTY TONIC

Remember the sulphur-n-molasses days? Ever since our grandmother used to force the stuff down our throat, we've been in favor of nicer-tasting medicines for man, beast, and machine.

Hence Dr. Wing-Tips' Tasty Tonic—The Palatable Potion for Planes, (also known as Gulfpride Oil) In developing this yummy panacea, the old Doc achieved what is also the world's finest lubricant. The exclusive Alchlor process—which digs out up to 20% more nasty-tasting sludge and carbon-formers—is probably responsible. Anyway Gulfpride's the best prescription for any season—both for your plane and your pocketbook.



HONOR ROLL



Billie S. Adams—C. M. Dahlen—Walter L. Miller—Joe McKinstry—Charles M. D. Reed—Leonard C. Todd—Thomas J. O'Hara, Jr.—Louis H. Shornick—Gene W. Bichon—Lieut. Lynn Berentz—Charles W. Wilson—Bill Maxson—Joseph Terek—J. L. Antic—Frank Barberis—Edward C. Breinig—Warren G. Furry—Russell P. Hay—George F. Kenny—Stanley Patrick—Robert Murray—Lyman Holmes—L. B. Howland—R. C. Humphrey—J. Stiles Owens, Jr.—Marshall Newcomb—Jack Hipple—Ernest E. Erickson—Lee Dover—Leon Wosika—Mrs. Harold Walker—J. Wistar Stowe—L. R. Stockdale—John Messner—Wilhelm Baum—Rolla Kerman—C. E. Juncker—C. M. Jamieson—Robt. R. Jewett—Donald Irgens—Evan H. Schuette—Bob Consaley—D. O. Siker—Stanley D. Herbert—Edwin Sykes—James W. Davis—Don McCash—James Norman—Albert Preuss, Jr.—Charles Phelps—J. Howard Wilcox—Wiley Clayton—Walter B. Hass—Thomas R. Cole, Jr.—Don C. Kish—Edward C. Blomeyer, Jr.—Kenneth Colville—F. E. Every—Bernard M. Rose—Travis J. Armstrong—Thomas S. Noble—Marvin Weller—John Turner—Richard Smith—D. W. Fraley—Betty Peuser—Bill Forberg—J. R. Shoemaker—John Anderson—E. Frederickson—Emmet O'Laughlin—Elmer R. Stiffler—Ray K. Rowe—Allen Ruppert—T. S. Torreson, Jr.—Herb Weiss—George W. Prediger—James C. Schubert—Philip S. Hartman—Albert J. Lindh—P. S. McCulloch—Billy McDaniel—Walter E. Maddy—Karl K. Dittmer—Bob Chance—Edward Carney—Ralph T. Argue—Jack Irving Weinstein—Wilber Weisler—F. P. Taylor—Howard Edwards—Philip Emilio—Henry Eisenberg—Earl Smith—Carroll L. Greer—John Reinhold, Jr.—Glenn Englest—Leon Resnicow—Bill Champlin—Ted Higgins—John H. Knight—Wm. V. Mansfield—Clifford A. Wright—A. Q. Lundquist—Clarence Williams—Henry Winslow—Ward Prostman—Howard Shull—William L. Frames—Jeanne Haylock—Marcell Jansen—Charles J. Paine—Daniel Reyes—F. W. Shepardson—A. C. Fowler—Wallace E. Howell—R. F. Jennings—Jody Brown—John C. Babcock—Helen Lee—W. Sterrett Parkin—Howard French—William White—Lowell Miles—Lyster B. Conry—Dale Bassett—Quentin Evans—Ernest Gardner—Martin M. Georges—A. R. Metcalfe—B. Reiser—Jack Polkey—Henry B. Fernald, Jr.—George Lindner—G. P. Thora—A. M. Scheerer—Ken Coward—R. M. Prine—Carl W. Mumm—David Grimm—Leon Edelson—Vance S. Coleman—J. W. Stevens—Howard Burhama—E. G. Davis—Vernon George Giossi—Richard Hayworth—Hugh Neumeyer—Herbert Berl—Harold Earp—John F. Hedrick—Gregg Henry—Stanley Ward—Jack Dexter Wright—Bill Holloway—Ray La Master—Don Stitzer—Donald C. Stone—Dale Uppinghouse—N. G. Willen—Ted Hanna—Lloyd Porkert, III—Robert Crouse—Curtis O. Hanson—J. Hendrick—Vincent D. Hock—Charles Renn—Jack L. Zant—Bill Carroll—Joe M. Warren, III—Laura Riggs—Floyd Adkisson—J. E. Baxter—Richard J. Buchan—Dan Reid—Henry L. Harmon—John Wm. Cheap—Robert Burgess—Wm. B. Ames—John Jolly—Kermit E. Henninger—Anton Trykoski—Willard H. Dudley—C. Robert Brandt—Larry Gilbert—Herman A. Rinke—William Bernstein—Taylor D. Johnson—Russell French—Everett G. Benton—Wm. Dean Noyes—Donald L. Thompson

THIS MONTH'S THUMBNAIL WHOPPER!



Dear T.W.T.

Want to know why I never have any trouble solving your posers?

Don't tell, but I always keep a cup of Gulf Aviation Gas at my elbow.

Between us, one swallow of G.A.G. will give anyone flights of the imagination!

Help! Ulp! Glug!

Laura Riggs

Gulf Oil Corporation and Gulf Refining Company . . . makers of



GULF AVIATION PRODUCTS

New Route

(Continued from page 1)

CAA decision upheld the report completely.

Explaining its general philosophy on the new route question, the CAA pointed out that the declaration of policy of the Civil Aeronautics Act sets up the standards by which the CAA is to determine if a route is in the public interest.

"Obviously, in the light of these standards, it was not the Congressional intent that the air transportation system of the country should be 'frozen' to its present pattern," the Authority said. "On the other hand, it is equally apparent that Congress intended the Authority to exercise a firm control over the expansion of air transportation routes in order to prevent the scramble for routes which might occur under a 'laissez faire' policy. Congress, in defining the problem, clearly intended to avoid the duplication of transportation facilities and services, the wasteful competitive practices, such as the opening of non-productive routes, and other uneconomic results which characterized the development of other modes of transportation prior to the time of their governmental regulation."

Operations between the Twin Cities and Duluth-Superior could be economically conducted by Northwest since the company's maintenance base is located at St. Paul and no reserve equipment would be required, the decision said. "In addition, the inauguration of air transportation service between these terminals would improve applicant's general economic position in that passengers moving to Chicago and Milwaukee from Duluth-Superior via the Twin Cities would bring additional revenue to its present route," it added.

The CAA stated that the large populations of Duluth and Superior, the heavy traffic movement between that area and the Twin Cities, their established community of interest and trade relationship and the inadequacy of existing transportation facilities "indicates that substantial passenger and mail revenues will be realized . . . and that the benefit which will result therefrom to the particular communities in question and to the nation will justify the assumption by the government of the relatively small cost thereof."

Concerning Milwaukee-Green Bay, which was refused, the decision stated: "The sparsity of the presentation made by the applicant on the economic characteristics of this region was striking. Comparative data which would have seemed of obvious pertinence were omitted from the record and neither the applicant nor the representatives of the communities appearing as witnesses provided material on the basis of which there could be a finding that the air transportation for which authorization was sought was required by the public convenience and necessity. The same observations apply to the portion of the proposed route lying between Green Bay and Marquette." The Authority also found "a lack of any substantial evidence" that the public convenience and necessity requires the alternative route between Chicago and the Twin Cities via Marquette.

It was explained in the decision that establishment of a new route involves as its necessary consequence a certain cost to the government in mail compensation and in construction, operation and maintenance of airways.

"It is obvious, however, that as the technique of flight progresses it may develop that the installation of fewer of such aids will be required and that as a result the possible cost to the government incident to the establishment of a new route will be substantially reduced," the CAA said. "Any conclusions,

Nothing Lost in Translation



P. A. Norlin, Swedish airline representative, recently demonstrated that a funny Swedish anecdote is just as good translated into English when he met at dinner with executives of TWA in Kansas City, Mo. Norlin, who was inspecting airline facilities in the U. S. in anticipation of the opening of Scandinavian-American trans-Atlantic air service, is standing third from the right.

TWA officials in the picture, top row, left to right: L. G. Fritz, vice president-operations; J. C. (Jack) Franklin, assistant to the president and secretary; E. J. Minser, chief meteorologist; Jack Frye, president; Norlin; T. B. Wilson, chairman of the board; John Collins, superintendent of operations.

Bottom row: Charles L. Gallo, manager of rates, schedules and research; Peter Redpath, superintendent of airways and navigation; D. W. (Tommy) Tomlinson, chief engineer and "overweather" research flyer; E. Lee Talman, vice president and treasurer; Vincent P. Conroy, vice president—traffic and sales; C. A. Williams, superintendent of passenger service.

therefore, with respect to the present costs of such facilities must necessarily be regarded with reserve.

"The Authority, in determining whether the inauguration of a new service will result in carrying out the objectives of the Act as set forth in the declaration of policy, must consequently consider not only the need of the particular community or section for the proposed operation but also the relationship which such service bears to the development of a nationally adequate and economically sound air transportation system from the broad standpoint of the postal service, commerce and the national defense. Furthermore, this determination must be made in the light not only of the cost to the public incident to the inauguration and operation of the service but also of the regulation of the expansion of the industry at a crucial period of its development in a manner which will not only foster sound economic conditions in air transportation at the present time but also in the future.

"One of the factors directly related to the interests of the public and to the economic welfare of the industry is the relationship between the estimated commercial revenues and operating costs of the proposed service. It is our belief that unless exceptional circumstances, such as the particular importance of a route from the standpoint of the national defense, exist in a given case, this relationship should not initially impose upon the government an unduly large proportion of the total operating cost.

"Conditions surrounding the operation of any service receiving a certificate should also be such as to justify an anticipation that commercial revenues will show a continuing tendency to increase, with a consequent progressive decrease in the degree of the carrier's dependence on the government. However, in gauging the commercial revenue potential of a proposed route it is apparent that its establishment, like the inauguration of steamboat and railroad service in earlier days, and the use of the automobile, will serve as a means for the development of the communities and the areas which may be served, and that it may well result in an accentuation of the passenger, express and mail traffic of the particular section in question."

Assuming a mail rate of 40c per mile on the route, the annual cost to the government would be only \$38,385, the de-

Suffered Amnesia

After Crash, CAA

Employee Testifies

Hearing was held Feb. 28-29 in Baltimore and was to continue in Washington as this issue went to press to determine if Chris Lample, assistant chief of the CAA's airways engineering division, violated the Civil Air Regulations before crashing one of the Authority's planes on Sept. 5, 1939.

Both Lample and his fiancée, Miss Elizabeth Collieran, testified that they had suffered amnesia as a result of the crash and were unable to remember what happened immediately preceding the accident. Lample and Miss Collieran were married recently.

Extensive testimony on amnesia was given at the Baltimore hearing, held before CAA member Oswald Ryan, by Dr. William H. Gantt, of Phipps Psychiatric Clinic, Johns Hopkins Hospital, and Dr. George B. Sybert, private practitioner.

The hearing is the first in which the CAA has tried one of its own employees on alleged CAR violations. The Air Safety Board gave the probable cause of the accident as "loss of power while maneuvering the aircraft at extremely low altitude," adding that a contributing factor had been the "action of the pilot in maneuvering the aircraft over a populated area at low altitude."

Fred Glass, ASB examiner, is trying the case for the CAA.

'Off Beaten Path' by Air

Canadian Airways Ltd. is distributing a generously illustrated booklet, "Off the Beaten Path," pointing out the "tourist and sportman's paradise" to be found in out-of-the-way places in Canada. "Many of the lakes accessible only by air have never been fished, and are only a few hours by air from the railway," reads an opening paragraph in the promotional booklet.

cision said. Cost of installing field lighting equipment at \$395 per mile and a necessary radio station at Duluth would involve capital expenditure by the government of \$98,000, while average cost of maintenance of these facilities, without allowance for depreciation or interest charges, would approximate \$23,000.

B-M GRANTED RATE INCREASE BY CAA

Company Receives 36¢ on AM27, With Retroactive Payment; Had Requested 42¢

Boston-Maine Airways' air mail pay on AM27, Boston-Caribou, Boston-Montreal, has been increased from 33 1/3¢ to 36¢ per mile as the result of a rate decision issued by the CAA on Mar. 1.

The rate, which was set almost 10 months after hearing was held is 6¢ per mile under the 42¢ requested by the company. In addition to the 36¢ rate, effective Mar. 1, the CAA granted the carrier retroactive pay of 35¢ per mile for the period from Apr. 7, 1939 to Feb. 29, 1940. New compensation is for the first 300 lbs. of mail or fraction thereof, plus 2.5% of such rate per mile for each additional 25 lbs. Direct airport-to-airport mileage is used.

Boston-Maine's operations were estimated by the CAA for the year beginning Mar. 1, 1940, as follows: 701,921 revenue miles, including 11,000 second-section miles, will be operated; passenger load will be 4.16, producing 2,919,991 passenger-miles which, at 5.5¢ per mile fare, will result in \$160,600 passenger revenue. Express revenue, the CAA stated, will be \$2,600; excess baggage, \$360, and incidental, \$14,480, bringing total non-mail revenue for the year to \$178,240. Direct and indirect flying expenses, exclusive of depreciation, are estimated at \$300,000 for the year.

The CAA noted that Boston-Maine owns three Lockheed Electras, two Stinson tri-motors and two single-engined Stinsons. Intention to purchase an additional Electra appears to be justified, the CAA said, adding, however, that both single-engined Stinsons are not needed for pilot training. Only one such plane was considered in setting the rates.

On depreciation, the decision stated that the four-year service life placed by the company on its two new Lockheeds acquired in Oct. 1936, was too short. Boston-Maine had indicated that one such plane would be fully depreciated Nov. 1, 1940, and the other Feb. 1, 1941, but the CAA extended both to Apr. 1, 1942, in setting the rate.

"An allowance of \$41,530, or 5.92¢ per revenue mile, for general and administration expenses was made in fixing the rate herein, which amount appears to be reasonable in light of petitioner's experience and estimates," the decision said.

Reviewing the company's history, the CAA pointed out that "from the beginning of its air mail operations, petitioner's current liabilities and deferred credits have exceeded its current assets and deferred debits, such excess amounting to \$16,293.42 as of June 30, 1939.

"It appears that petitioner has obtained its working capital by means of short-term loans from banks and from the Boston-Maine Railroad and Maine Central Railroad, each of which companies owns 25% of petitioner's outstanding capital stock. As of June 30, 1939, there were outstanding short term loans to the extent of \$44,200."

Albany Coming Back

Albany, N. Y., Airport, which was closed to air transport operations a year ago, will be ready for restoration of airline service by Aug. 1, according to city officials. A \$360,000 WPA project is making possible extensive improvements according to CAA requirements for transport operations.

In good company ... as usual!

Newly completed Curtiss-Wright Model CW-20 transport,
America's largest twin-engined substratosphere plane,
carries a full complement of

Pioneer Instruments

Aviation's latest advances—innovations beneficial to traveler as well as pilot—are incorporated in this magnificent new Curtiss-Wright sky-giant.

Quite naturally, then, Pioneer flight instruments, navigational instruments and Autosyn remote-indicating instruments are chosen air-mates of this newest pioneer of progress.

PIONEER INSTRUMENT
DIVISION OF BENDIX AVIATION CORPORATION
BENDIX, NEW JERSEY



AA's Boston Staff Gets Merit Award

W. Nelson Bump, American Airlines' district sales manager at Boston, and E. B. Hale, station manager, receive a plaque symbolic of Boston's award of merit for service performed during



and after the 1938 hurricane from C. R. Smith, president of American. Attending the ceremony were Paul Zimmerman, reservations; B. L. Fairbank, agency manager; Paul McPeake, office manager, Statler Hotel; Frank MacBarron, sales; Cess Loveless, reservations manager; Margaret Lanergan, sales; Louis Amiro, ticket office manager, and E. V. Keeler, general foreman.

Penn-Central Asks Extension of AM41 From Traverse City to Grand Rapids

A two-day hearing was held in Washington Mar. 6-7 before CAA Examiner Lawrence Koster on the application of Pennsylvania-Central Airlines for extension of its AM41, Detroit-Sault Ste. Marie, from Traverse City to Grand Rapids.

Approximately 20 witnesses from Grand Rapids, Traverse City, Sault Ste. Marie, and other towns affected by the application appeared at the hearing to urge establishment of the service. It was pointed out that northern Michigan needs adequate air service, not now available, to Chicago and southwest cities. To fly to Chicago at present, it would be necessary to cross to Flint, in eastern Michigan, before traveling west, witnesses stated, calling such service impractical.

Frederick Crawford, PCA executive vice-president and secretary, told Ex-

aminer Koster that his company intends to establish "commuter service" from Traverse City to Chicago, setting schedules to allow persons from northern Michigan a full day in Chicago and enabling them to return the same evening. Two round trips a day with Boeing 247-D equipment are planned.

During the first five years of operation, PCA expects losses of \$22,100, \$14,100, \$8,000, \$1,800 and a profit of \$2,400, respectively, on the extension, according to Crawford's exhibits. The company would not be interested in operating the route without mail pay, he said. A rate of 36¢ per mile is now paid PCA on AM41, but Crawford stated that same payment would not necessarily be expected on the extension. The company may be paid more or less, he said, explaining that setting of a rate is by action of the CAA.

W. R. Manchester, assistant operations manager of PCA, testified that operations will be restricted to visual contact during daylight hours until aids are installed on the route. The airports at Traverse City and Grand Rapids are adequate for operation of Boeings, he stated, adding that weather conditions on the route should be "above average."

A substantial volume of air express can be developed following establishment of the proposed line, according to testimony given by N. P. Ballou, assistant to the president of Railway Express Agency, and manager of the company's air express division. Lack of direct service between northern Michigan and Grand Rapids, Chicago and southwest cities has stopped development of air express in that territory, he said.

Although the hearing was closed, it may be re-opened if Frederick Ballard, PCA attorney, wishes to cross-examine on mail counts to be made by the Post Office Dept. Such counts were to be submitted shortly after close of the session on Mar. 7. Joseph Paul appeared as counsel for the CAA.

PAA Takes 1st Stratoliner. 2nd Due Apr. 1, 3rd Later

Pan American Airways in mid-March took delivery on the first of three Boeing 307 Stratoliners being completed for the line at Seattle, Wash., by Boeing Aircraft Co. Second Stratoliner is scheduled for delivery before Apr. 1 which, with the first, is expected to see services between North and South America to offset recent introduction of four-engined overland transports by Italian and German lines in South America.

The third Boeing, scheduled for later delivery, was originally intended for experimental high altitude mail flying across the northern trans-Atlantic route.

All American Expansion Hearing Ends; Interveners State Positions

Hearing concluded Mar. 7 on application of All American Aviation Inc. for certification to transport mail, passengers and property along routes from Pittsburgh to Huntington, W. Va., Pittsburgh to Cleveland, Pittsburgh to Buffalo and Pittsburgh to New York. Intervening in the proceeding that had been recessed from Feb. 23 to Mar. 4 (AMERICAN AVIATION, Mar. 1, 1939) were Pennsylvania-Central Airlines, TWA, Eastern Air Lines and Tri-State Aviation Corp.

Sharp controversy marked the cross-examination of Richard C. du Pont, AAA president, crux of the conflict being the relevancy of business relationships between du Pont and Dr. Lytle S. Adams, president of Tri-State and inventor of the pick-up device employed by AAA in its present experimental air mail operations.

Repeated charges of irrelevancy leveled by Henry A. Wise Jr., AAA counsel, at such questioning were countered by the insistence of Gerald B. Brophy, appearing for Eastern and TWA, and William I. Denning, Tri-State counsel, that du Pont-Adams relations be aired, Brophy suggesting to CAA Examiner Robert I. Bartoo that the applicant had presented the need for AAA service as founded on "something inherent in the pick-up device" over which AAA gained control through acquisition of patents from Dr. Adams.

During cross-questioning by Denning, du Pont explained that he acquired the pick-up patents as collateral for a \$45,000 loan to Dr. Adams, the promissory note being dated Aug. 16, 1938. Provision was made that with payment of the debt by Dr. Adams, the patent rights would be transferred automatically to AAA. Thus far, du Pont indicated, one patent has been transferred from him to AAA, there being three included in the du Pont-Adams contract signed Sept. 12, 1938. For the patent assignment Dr. Adams received, according to du Pont, cash consideration and AAA stock. As part of the agreement, du Pont received an option to purchase 51% of Tri-State stock for an additional \$45,000.

Stockholdings of AAA were represented as being held by du Pont 51%, by Dr. Adams 25%, and by Arthur P. Davis 24%, although subsequent testimony by Dr. Adams revealed that he has recently sold some of his shares in payment of debts.

Questioned as to company plans for leasing or selling the pick-up device to other operators, du Pont stated that a definite company policy had not yet been formulated and suggested that development of the AAA type of service would depend upon the CAA's future feeder line policy. The company, he said, has considered granting the Stinson aircraft manufacturer license to install the pick-up and delivery equipment in their planes, purchasers of

which then would be required to obtain AAA permission for pick-up use.

E. Lee Talman, TWA vice-president-treasurer, in clarifying his company's position as intervener, told Examiner Bartoo that the following proposed routes are to be considered competitive with existing or projected TWA services: (1) Pittsburgh to New York via Williamsport, (2) Pittsburgh to New York via Camden, (3) Pittsburgh to Philadelphia, (4) Philadelphia to New York, (5) Pittsburgh to Harrisburg and (6) Harrisburg to New York, Harrisburg being included even though not appearing in AAA's application because the Post Office Dept. has suggested that city as desirable for AAA service.

Talman expressed opinion that AAA expansion would take business from TWA between Pittsburgh and New York, as he pointed out that in 1939, 11.53% of TWA's total passenger revenue was derived from traffic between the cities, 44,234 passengers bringing \$592,892.

Intervening witness for Eastern Air Lines, J. W. Moore, assistant secretary and treasurer, introduced figures showing that Eastern, operating five trips daily each way between Camden and Newark, received \$22,503 revenue from 5,770 Camden-Newark passengers during 1939. Moore gave assurance that Eastern is prepared to add whatever service that may be needed between these points, asserting that the company has "made every effort to develop short haul business," but that airlines can not compete with automobiles for short haul traffic.

Dr. Adams described Tri-State's interest in the case as in opposition only to AAA's proposed service between Pittsburgh and Huntington, since Tri-State has pending before the CAA application for a "grandfather" certificate covering essentially the same territory.

Robert I. Hazen, CAA senior air carrier inspector of the 1st region, testified that at present there are not adequate navigational aids for dispatching passengers over AAA's existing routes. Opinion was given that for night operation the lighting of pick-up stations would serve in lieu of some beacons normally used for air navigation, since the points for service are on the average only 17 miles apart. According to AAA's application passenger service is planned at first only for the Pittsburgh-Cleveland route, so that the company can determine the size and type of equipment that might best be used and gain operational experience before starting passenger service throughout the system.


Counsel for the parties were John A. Wise Jr., AAA; John T. Lorch and Gerald B. Brophy, for Eastern and TWA; Frederick A. Ballard, PCA; William I. Denning and John W. Cross, Tri-State; John H. Wanner and Greer M. Murphy, CAA. Deadline for filing of briefs is Apr. 1.

TWA Improves Engines

Installation of new type cylinders and pistons has been completed on all Wright Cyclone G-102 engines in service on TWA's 22 Douglas DC-3's. Primary changes in the cylinders are heavier heads and an increased number and depth of fins on the sleeves to provide additional cooling surfaces. New "Uni-flo" pistons have icicle-shaped fins or cooling surfaces on the inside. Installation has caused a decrease in airplane payload of 12½ lbs. per engine.

Fast, New MCA Schedule

Mid-Continent Airlines early in March inaugurated a fast through schedule known as the "Dakotan" between the Twin Cities, Huron and Bismarck, J. W. Miller, vice-president and general manager announced. An MCA Lockheed Electra leaves St. Paul at 1:45 pm.; ar. Huron, 3:42 pm.; ar. Bismarck, 5:45 pm. Eastbound the flight leaves Bismarck at 9:30 am.; ar. Huron, 11:13 am.; ar. St. Paul, 1:25 pm.



It Costs No More to FLY Continental

Figure the average cost of driving your own car—the cost of rail and pullman plus extras—and you find that it actually costs less to FLY CONTINENTAL. Yet you're there in minutes instead of hours when you fly. It's Continental to or through Colorado.

CONTINENTAL

AIR LINES

America's Fastest

SEATTLE-JUNEAU HEARING HELD

Pacific Alaska Plans Use of Boeing 307 on Route in 1941

A mail, passenger and express route between Seattle, Wash., and Juneau, Alaska, was sought by Pacific Alaska Airways, subsidiary of Pan American Airways, in a hearing before CAA Examiner Frank McIntyre, Feb. 26-29.

Pacific Alaska plans to begin operations over the route with a four-engined Sikorsky S-42-B flying boat, offering two trips a week during the summer until Oct. 15, 1940, when service would be suspended until May 15, 1941, according to testimony given by Harold M. Bixby, PAA vice-president. In the fall of 1941, with completion of the airport construction program in Alaska, change would be made to four-engined Boeing 307 landplanes, he said.

Because of winter icing conditions at Juneau and Ketchikan, year-around operation with seaplanes is not considered practicable, he added.

Between Aug. 7, 1938, and Jan. 13, 1939, PAA completed 20 Seattle-Juneau proving flights with a twin-engined Sikorsky S-43 amphibian. Bixby said, explaining that the ship did not prove satisfactory because of its insufficient payload. Operations also were restricted by the possibility of one engine failing with no emergency landing area available, he said.

During the five months of S-42-B operation, PAA estimates it will lose \$169,821 after depreciation and taxes, but before interest on investment or amortization of development costs and without U. S. mail pay, according to exhibits presented by Col. J. C. Roop, PAA comptroller. With use of Boeing 307 equipment, yearly loss, on the same basis, is estimated at \$330,316. The company expects to carry 3,053 passengers a year on the route, and Seattle-Juneau fare will be \$95. Approximately 10,000 lbs. of express will be transported yearly, 75% northbound and 25% southbound. Testimony on communications facilities was given by Hugo C. Leuteritz, PAA chief communications engineer.

Charles P. Graddick, superintendent of air mail, Post Office Dept., told Examiner McIntyre that twice-weekly service was desirable throughout the year, with possibly more schedules needed in winter when water transportation to Alaska is unsatisfactory. For two years, he said, the PO has had appropriations for U. S.-Alaska air mail service, providing \$213,000 in fiscal 1940. Although such funds are not in the 1941 budget, he expressed confidence that with establishment of the route, necessary money would be forthcoming.

Establishment of the route was urged at the hearing by Dr. Ernest Gruening, governor of Alaska; Anthony J. Dimond, Congressional delegate from Alaska; Sen. Lewis Schwellenbach (D., Wash.) and J. J. Underwood, Seattle Chamber of Commerce.

Dr. Gruening stated that Alaskan planes had increased 2,087% in 1939 over 1929; plane miles increased 863%; passengers carried, 1,273%; passenger-miles, 2,010%; mail poundage, 1,992%, and express and freight, 4,135%. Dimond expressed the opinion that a 30-passenger Seattle-Juneau plane could be filled every day during the five summer months without taking a single passenger from boats in service.

John S. Wynne appeared at the hearing as counsel for Marine Airways Inc., and Alaskan Air Transport Inc., to state that those companies, which now

Great Falls-Lethbridge Route Not Required, CAA Examiners State

With the statement that Western Air Express and Inland Air Lines had failed to prove the necessity for a Great Falls-Lethbridge route, CAA Examiners C. Edward Leasure and Thomas L. Wrenn on Feb. 29 issued a proposed report recommending against establishment of the line and asking denial of the companies' applications.

Although widely heralded for several years as the last link in an "inside" route to Alaska, the examiners stated that evidence submitted in support of such contentions was "meager." Service north of Edmonton is now operated only one day a week, and use of the proposed route as a time saver over present air-boat schedules on the coastal line to Alaska would be limited to one day a week, they said.

"As has been previously stated, it is impossible to lay down any general rule by which it can be determined whether a particular route is required by the public convenience and necessity," the examiners said in their conclusions. "In proceedings arising under other regulatory statutes the courts and regulatory bodies have indicated that, although it is not necessary to show an indispensable necessity for the service, there must be a showing of definite public need.

"Furthermore, under the guidance furnished by the declaration of policy contained in the Act, the interests of the government and the industry must also be considered, and the interest of all, the public, the government and the industry, relate not only to the need of a particular community or section for the proposed operation, but also to the relationship which it bears to the development of a nationally adequate and economically sound air transportation system from the broad standpoint of the postal service, commerce, and the national defense. These broader as-

pects are especially important when the proposed operation involves foreign air transportation.

"Although the record indicates that a community of interest exists between certain of the areas served by the existing air routes which would be connected by the proposed route, the applicants have failed to maintain the burden of proof required of them to present underlying facts sufficient to support a finding that the proposed route is required by the public convenience and necessity."

Witnesses for the applicants testified, the examiners stated in reviewing the case, that 116,000 Canadians live in southern California; that 12,000-15,000 members of the Mormon church reside in western Canada; that Montana and Alberta populations are largely of the same stock, and that there is a definite community of interest between the population of western Canada and territories served by WAE and Inland due to their common industrial activities.

"Although such conditions would tend to indicate the probability of travel and intercommunication between western Canada on the one hand and southern California, Utah, Montana and Wyoming on the other, very little statistical data in support of such conclusion was presented for the record," they said. A traffic expert, they noted, testified that the trade areas of Denver, Salt Lake City and Los Angeles-San Diego would be directly affected by the Great Falls-Lethbridge line by reason of their proximity to the routes of the applicants.

For the year ended May 31, 1939, air mail on Northwest Airlines between Fargo and Winnipeg "totaled only 10,217 lbs.," the examiners stated. Total air mail originated in Great Falls in 1938 was 278,495 pieces, and 178,850 received, while Lethbridge originated 223,482 and received 190,617.

United Shifts Three

Announcement of the appointment of R. E. Peterson to head a new department of convention solicitation in the Chicago traffic office of United Air Lines has been made by R. F. Ahrens, regional traffic manager. Peterson, who formerly headed United's agency department, is succeeded in the position by A. C. Fitzpatrick. F. Patrick O'Toole, formerly with United both in Chicago and New York and then with Columbia Broadcasting System, is returning to the line to take Fitzpatrick's place in the district advertising sales department.

WAE's Harmon Retires



Loye Harmon (left) of Western Air Express, one of the few women in the country to direct an airline's passenger service, is in final conference with W. Duncan Robertson, superintendent of passenger service and supplies, prior to her retirement after a five-year aviation career.

In Mar. 1935, Miss Harmon began her career with WAE as a stewardess. By Sept. 1937 she was promoted to chief stewardess, and two years later took over additional duties as passenger service director. She is now retiring to private life as the wife of John Barchard, WAE co-pilot.

New TCA Movie Ready

Trans-Canada Air Lines has added to its stock of travel film a story known as "Swift Family Robinson" which tells of a TCA flight and operations from the Atlantic to Pacific. The full color film will be made available to civic and other organizations through offices in New York, Boston, Philadelphia, and Washington.

Strategy

The recent CAA order prohibiting simultaneous schedules has not made it necessary for airlines to change their timetables, and United Air Lines is listing its New York-Chicago non-stops as operating at 9 am., 12 noon, 3 pm., and 5 pm., with the following note in "general information":

"To provide adequately for safety in air commerce all scheduled departures are subject to delay at take-off in accordance with the traffic control procedure of the Civil Aeronautics Authority and the Civil Air Regulations pertaining to simultaneous departures."

Since American Airlines operates 12-3-5 New York-Chicago non-stops, the three corresponding United trips have been departing approximately five minutes after the hour.

Panagra Names De Groot to New Post; Travel Booms

Predictions that the European war would stimulate travel to Latin America is borne out when Pan America Airways reported that in February 11,839 air passengers cleared in or out of the Miami gateway, a 31% increase over 1938. The record for a single day was 585 passengers in and out on Feb. 23, requiring 24 clipper ships.

In order to stimulate further the increased traffic to the south, Pan American-Grace Airways, associate company of PAA, has appointed Christopher de Groot as special traffic representative in New York to direct more U. S. travel to South America, particularly to the west coast.

New Telemeter for United

Because of expansion in reservations dispatches, United Air Lines has installed a new direct telemeter line between Chicago and Denver. C. A. Petry, superintendent of telephone and telegraph, has announced. Another new telemeter circuit between New York and Cleveland was expected to be in operation soon, supplementing circuits between New York and Chicago and between Chicago and Cleveland. United's complete circuit is said to be the longest transportation teletype circuit in the world.

operate Juneau-Ketchikan charter service, do not object to Seattle-Juneau, but oppose local Juneau-Ketchikan operation by PAA.

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Fortnightly Review

(Continued from page 1)

repair; instead, he will inspect the repair station and "spot-check" some of the repair jobs.

Similarly, air carriers and fixed base operators may expect a lifting of regulations requiring the presence and approval of federal inspectors for every detail. Those in the schools, repair stations, etc., who are delegated with authority to issue approvals, will be subject to rigid inspection themselves, with quick revocation of licenses as the penalty for violations or carelessness.

CAA Administrator Clinton M. Hester, who set out over a year ago to simplify the present system of federal regulation and inspection, is chiefly responsible for the changes. It is predicted that no increases in the number of CAA inspectors will be necessary in the future under the new method, although heavy increases would have been necessary if the out-moded system of inspection were to be continued.

It's just a trend, but if it continues the entire method of inspection will be changed within the next year. No longer will the pilot having a new radio installed have to wait weeks for an inspector to come around to give his approval; the repair station will make the installation, certify it, and that's all there will be to it if the job is done according to regulations.

It has long appeared obvious to many in the industry and to some in the government, that aviation would have to outgrow the short-pants supervision which it has had for over 10 years. It either had to outgrow it, or the federal government would become burdened with a costly inspection system against which the public would eventually rebel even if aviation didn't.

The pilot training program brought about a crisis, and in solving it the Bureau of Safety Regulations evidently found that a simplified system could be adopted for inspection services other than flight tests. The key to this simplification is better and more standardized flying schools, better and more reliable repair stations. The federal government should put the responsibility for certifications upon the qualified and approved school and station; it should then be the federal job to supervise and inspect these units instead of attempting the next-to-the-impossible task of inspecting individually each pilot and each airplane. The thanks of every pilot and plane owner (and taxpayer) will go to Clinton Hester and Dick Boutelle when the simplification process which they have started runs to its logical conclusion and embraces the entire field of civil aviation inspection.

The Shape of Things to Come

THE dapper, agile little dynamo who heads Northwest Airlines, Croil Hunter, has just acquired something to hand down to his grandchildren. It is a copy of an order of the Civil Aeronautics Authority authorizing a new route for his airline. Its historical value becomes apparent only when one considers that here is the first new route authorization issued by the Authority since its creation Aug. 22, 1938. Whatever other authorizations the CAA has made previously had been more or less mandatory under the law and the amiable and alert Mr. Hunter deserves all of the esteem due him at this time for this momentous occasion.

It took a long time for Miss CAA to make her girlish debut into the more worldly social whirl of transport aviation, and although she will

undoubtedly cut quite a figure in Minnesota because of Mr. Hunter's new route, the boys are going to shy away from making dates with her in certain other parts of the country. We had all been hearing that Miss CAA was not only exceedingly alluring and shapely but was just about the most beautiful debutante ever to make her official introduction into grown-up society, and the stag line prior to her entrance was getting pretty long.

Now that she has made her appearance the stag line is in a state of jitters because there seems to be quite a difference of opinion on whether she is, after all, the glamour girl her family said she was. We don't mean to imply that the reception Miss CAA will get in Croil Hunter's territory is merely because the tastes there are not on the high standard of Montana, for such is undoubtedly not the case, but we do know that Miss CAA is going to be mighty fickle.

Take, for example, the examiners' report just issued which says there is not sufficient public convenience or necessity for an airline route between Great Falls, Montana, and Lethbridge, Alberta. Miss CAA may have the boys in Minnesota all in a dither, but out Montana way she is apt to be snubbed very decidedly. Because the examiners' report on Great Falls-Lethbridge is bound to be one of the most unpopular reports ever issued by the Authority.

Just what is behind this examiners' report is not clear on the surface, but there must be more than shows up in the report or our estimate of Examiner C. Edward Leasure has been far off balance. The report simply doesn't make sense as it now stands, for of all the routes for which applications have been made, this one shows up as one of the most desirable and logical. It is a missing link to an important international network and sooner or later the reasons for the unfavorable report will have to find the light of day. We can only hope that the Authority will not accept it.

It is only 170 miles between Great Falls and Lethbridge. So the expense of the service cannot be very great even if no traffic existed. But the traffic potential is very considerable. To say that there is existing service would be like saying that since it is possible to get to Tokyo from New York by way of London, Marseilles and India that there should be no service across the Pacific. Both Inland Air Lines and Western Air Express proved public necessity or our measure of public necessity needs overhauling, and if our measure of reckoning needs overhauling the aircraft factories might as well close up most of their shops and figure only on manufacturing replacement ships for existing airlines. This 170-mile link, where railroad service is almost non-existent and where there is not even a paved highway connection, would open up through service to Alaska, would connect two transcontinental services directly, and feed into two important north-south arteries. By all possible arguments the filling of this gap is logical, reasonable, and virtually mandatory by any responsible public body.

We are pleased to note, however, that the new route debut of Miss CAA has not been a dead loss, for the Northwest addition is something, and Continental Air Lines has received authorization for an alternate route between El Paso and Albuquerque, providing service to rich new country. Now that the first new route decisions are out, perhaps the timidity of the debutante will be overcome sufficiently to make her more socially acceptable, which means that the Authority has several examiners' decisions to reverse.

Reaction

Post Office Dept. reaction to two CAA examiners' reports issued recently has been decidedly unfavorable. Although no P O official could speak officially or publicly, there was no hiding of personal feelings of complete disagreement with the examiners who have recommended to the Authority that mail not be authorized for Pennsylvania-Central Airlines' Pittsburgh-Buffalo route and that authorization be refused either Western Air Express or Inland Air Lines for the proposed route from Great Falls, Montana, to Lethbridge, Alberta, connecting domestic U. S. airlines with Trans-Canada Air Lines and other Canadian routes to the north country.

In the PCA case, the airline applied for mail for its existing passenger and express service. The Post Office Dept. was represented at the hearing and offered testimony stating that the P O favored the mail. As far as this department is concerned, it was under the belief that it had the right to purchase transportation service for the mail as it desired, and was considerably surprised, according to authoritative information, when the CAA examiners recommended unfavorably. It had offered testimony that not only would important cities be served, but the route would offer good connections for mail to and from Canada at Buffalo.

But when the examiner in the Great Falls-Lethbridge case reported to the Authority that he did not think public convenience and necessity justified the 100 mile or so international link, certain P O officials were outspoken in their condemnation of such procedure, since the depart-

ment had presented carefully worked out data showing the numerous advantages that would accrue by having an air mail service on what is, potentially, one of the most important air trade routes on the continent. The short link would provide air mail and passenger service from Alaska to Buenos Aires, the entire length of two continents. At present the highway connections are poor and the thrice-weekly railroad service is farcical. Both Western Air and Inland presented their cases at great expense, bringing witnesses and experts from the far west to prove public necessity for the service. No international situation is involved since Canada has given permission for a U. S. company to fly to Lethbridge.

At the CAA it was pointed out that the examiners' reports were merely reports to the Authority and hence the two cases are in no way finally decided. At the Post Office Dept. it was said sarcastically that "if this is the way our requests are treated there doesn't seem to be much use for us to even appear at the hearings. Maybe the Post Office Dept. doesn't have anything to do with transporting the mail after all."

A Faith That Was Justified

HERE is a story with a very pointed moral. When Major A. B. McMullen was building airports in Florida as state aviation director, he was chided from time to time for building so many landing fields. At one time Florida led all other states in the amount of money on airport construction but McMullen didn't let criticism dampen his ardor for clearing away the brush and trees for landing strips at every opportunity.

Early in January of this year hundreds of lightplanes made their way to Florida. Tropical rain storms come up fast in that area and they are something to stay away from, particularly for light ships. One segment of the cavalcade was moving down the western part of the peninsula and came up against a typical Florida wind and rain storm. The leading ships turned about, headed for a landing field which happened to be the only spot to land over a wide area. The other ships followed. By the time the storm arrived there were 42 light aircraft on that field and it hadn't been visited by a single plane in seven months! Whatever investment was made in this small field years ago was well repaid on a single day.

Capital Notes

THE ANGLO-FRENCH PURCHASING BOARD is now prepared to move rapidly ahead with its aircraft procurement program after some weeks of delay and inactivity. The special air mission recently returned from consultations with home offices overseas held a conference with Secretary Morgenthau and announced that "staggering sums" approaching \$1,000,000,000 would be spent for American planes and equipment.

Earlier plans to freeze production on several specific models to be supplied by a limited number of selected companies have been definitely abandoned. Reports of German success in developing newer types of fighting ships are thought to have influenced this decision.

The Allies are passing along the broad hint that they intend to buy from those manufacturers who can supply the greatest number of planes in the shortest time. Obviously, early deliveries and quantity production will bear more weight than prices in negotiation of contracts. Interviews with manufacturers are already in process, with attention particularly centered on the acquisition of bombers.

France and Great Britain are each signing their own separate agreements with producers. But the two countries are working in even closer cooperation to achieve a coordinated purchasing program.

INCREASED FREIGHT RATES FOR AIRCRAFT SHIPMENTS appear imminent. Despite the persistent denial of the Association of American Railroads that the Interstate Commerce Commission will be asked only for reduced insurance liability, one application has already come in for higher tariffs. The New York, New Haven and Hartford line, in conjunction with the New York Central recently applied for authority to hike rates sharply on aircraft engine freight over the East Hartford-Weehawken route.

Although the case affects only a special short run, aviation interests were quick to realize that it may set a precedent with potentially serious consequences. With the cooperation of the Aeronautical Chamber of Commerce, manufacturers began organizing for vigorous opposition. Procedure requires that a formal request for suspension be filed with the ICC; otherwise the new rate would become automatically effective on Mar. 25.

Should the ICC decide that the railroads appear to have adequate justification for the increase, hearings will be called which may result in a comprehensive examination into the whole question of aircraft freight rates. In any case, the railroad association expects to ask for ICC authority to reduce insurance liability, claiming that the high value of aeronautical shipments is completely out of proportion to carrier earnings.

THE COST OF MILITARY AIRPLANES is said to be gradually increasing. But experts differ as to the contributing factors. Some excitement surrounded the recent accusation of Rep. Paul Shafer, Michigan Republican, that manufacturers have

hoisted prices to the Army because of foreign business. The incident embarrassed the House Military Affairs Committee which had discussed the matter in secret session with Brig. Gen. Arnold, chief of the Air Corps, whom Shafer claimed to be quoting.

High-ranking committee members later said that the General did admit that prices are going up, but cited rising labor and material costs as the principal reasons. Also, it is understood that aircraft factories are working under extremely uncertain production schedules, since at any time they must abandon foreign contracts to meet national defense needs. The next day, Gen. Arnold told the House Appropriations Committee that prices on Army planes had not so far been affected by the European war, since Army contracts were placed before the present influx of foreign orders. Any chance of profiteering or graft, officials explained, is impossible under the 12 percent profit limitation law.

The argument is likely to recur. It may revolve around the request in the annual War Dept. appropriation bill for an additional \$20,000,000 in contract authority, based on increased aircraft costs. This bill, now in committee, is expected to reach the House floor before the end of the month. Meanwhile, the National Resources Council is well underway with a broad investigation into the factors affecting aircraft production and the unit costs of planes and parts.

EXPANSION OF THE AIR MAIL to include transmission of postcards at a three cent rate is proposed by Rep. Carl T. Durham in a bill (HR 8790) recently introduced in the House. The bill is assured of serious attention since Rep. Durham heads the important classification and postal rate subcommittee of the House Post Office Committee.

The Congressmen believes that a liberalization of air mail rates in this manner will serve the triple purpose of increasing postal revenues, aiding the air transport industry and broadening the public service. An air-minded Democrat from North Carolina, Rep. Durham, said he anticipates Post Office approval of his bill.

Hearings on the Durham bill, to be called as soon as feasible after the middle of the month, are likely to open the flood gates to other suggestions for widening the scope of the air mail service. Among several proposals which have been under consideration for some time are a four cent "lettergram" plan said to have the informal backing of high Federal officials, and a reduced five cent postage rate for straight air mail.

CAPT. YANCEY DIES

Noted Navigator, Who Flew to Rome in 1929, Recently Returned From One-Year Expedition

Lewis Alonzo Yancey, 44, noted aeronautical navigator who was navigator and co-pilot with Roger Q. Williams on a flight from the U. S. to Rome in 1929, died on Mar. 2 at his home in Yonkers, N. Y. A captain in the Navy, Yancey in 1930 made the first flight from New York to Bermuda and was reported to be the only pilot ever to loop an autogiro.

Capt. Yancey returned home last summer after serving as navigator of the flying laboratory of the American Museum of Natural History on its one-year expedition to New Guinea, under the command of Richard Archbold. The expedition blazed an air trail from Sydney to Mombasa, Kenya Colony, East Africa, in a survey sponsored by the Australian government. Capt. Yancey held membership in the Aviation Post, New York Chapter of the American Legion; the Quiet Birdmen and the Ligue International des Aviateurs.

France Promotes Detroyat

Lt. Michel Detroyat, attached to the French fighting squadron since the beginning of the war, has been promoted to captain in the French Armée de l'Air as a test pilot.



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Obituary

CHARLES AUGUST HIRSCH, an employee of Lockheed Aircraft Corp., at Burbank, Cal., since 1936, died following a motorcycle accident on Feb. 17. His home was in Kansas City, Mo.

ISAAC C. POPPER, 65, who in 1932 designed and constructed a revolutionary airplane with power-driven conical rotor spindles, died on Feb. 29 in New York City after a short illness.

ARTHUR SPIELBERGER, 46, mechanical engineer with Fairchild Aviation Corp., Jamaica, N. Y., died on Mar. 3 following a heart attack. He had been a Fairchild employe for seven years.

To Stress Small Airports

Connecticut will stress the building of small landing fields in the future now that larger airports have been constructed at larger communities, Harvey L. Williams, engineering adviser to the Connecticut Aeronautical Development Commission, stated in the March Connecticut aviation number of *Yankee*, New England publication. Articles in the issue discuss the state's firm belief in the future of aviation and what it has done and is planning to do to aid its growth.

AIR CARRIER RECORD

(C. A. A. Applications, Hearings, Dockets)

NEW ROUTE AWARDED

CAA Awards First New Route

In its first new route decision, the CAA has awarded Northwest Airlines a Twin Cities to Duluth-Superior operation. Complete story on page 1.

APPROVAL GRANTED

Continental Gets Roswell-Hobbs-Carlsbad

Continental Air Lines has been granted permission to serve Roswell, Hobbs and Carlsbad, N. M., on AM29, Denver-El Paso. Complete story on this page.

RATE DECISIONS

Boston-Maine Rate Decision

In a rate decision issued Mar. 1 the CAA increased Boston-Maine Airways' mail pay on AM27 from 33½¢ to 36¢. Complete story on page 12.

Bermuda Rate Decision

The CAA on Mar. 2 granted Pan American Airways air mail compensation of \$1,700 per outbound trip on the U. S.-Bermuda route. Complete story on page 20.

APPLICATIONS

Burke Asks Route

Andrew J. Burke has filed application with the CAA for a mail-passenger-property route between Corpus Christi and Monterey, Mexico, via Laredo.

Eastern Asks Three Stops

In applications filed Mar. 1, Eastern Air Lines has asked permission to stop at Raleigh on AM5, Savannah on AM10 and Brunswick on AM6.

T. B. Wilson Approval Sought

Application has been filed with the CAA asking approval of T. B. Wilson as director and chairman of the board of TWA, director of All American Bus and Investment Co., and director of All American Bus Lines Inc.

PROPOSED REPORTS

Bismarck-Minot Recommended

A proposed report issued by CAA Examiner Thomas L. Wrenn has recommended that Mid-Continent Airlines be granted permission to extend AM26 from Bismarck to Minot, N. D. Complete story on this page.

Proposed Report on Railway Express

CAA Examiner F. A. Law on Feb. 28 issued a proposed report stating that although Railway Express Agency is entitled to a "grandfather" certificate as an air carrier, it should be relieved of the necessity of having such a certificate. Complete story on page 10.

Great Falls-Lethbridge Line Not Required

A route from Great Falls to Lethbridge, sought by Western Air Express and Inland Air Lines, is not required by the public convenience and necessity, according to a proposed report released Feb. 29 by CAA Examiners C. Edward Leasure and Thomas L. Wrenn. Complete story on page 15.

HEARINGS

PCA Asks Traverse City-Grand Rapids

In hearing held Mar. 6-7, Pennsylvania-Central Airlines sought extension of AM41 from Traverse City to Grand Rapids. Complete story on page 14.

Pan American Trans-Atlantic Amendment

Short hearing was held by CAA Examiner Francis Brown on Mar. 6 to provide payment for excess mail carried by Pan American Airways to Horta. Complete story on page 19.

TWA Rate Case Reopened

Transcontinental & Western Air Inc.'s mail rate case on which hearing was held last August was reopened Feb. 29 to receive evidence relative to the company's new mail service, AM-44 (Kansas City-Chicago-New York and Kansas City-Chicago-Pittsburgh). Complete story on page 19.

All American Hearing Completed

Hearing was completed Mar. 7 on application of all American Aviation Inc. for expansion of its air pick-up and delivery service along six routes out of Pittsburgh. Complete story on page 14.

Seattle-Juneau Hearing

Hearing was held in Washington Feb. 26-29 on application of Pacific Alaska Airways for a Seattle-Juneau route. Complete story on page 15.

MISCELLANEOUS

Condor Disapproved

The CAA has refused to issue a "grandfather" certificate to Condor Air Lines for its Alameda-Monterey route. Complete story on page 20.

Tri-State Oral Argument

Tri-State Aviation Corp., operated by Dr. L. S. Adams, inventor of the pick-up and delivery device, has requested oral argument before the Authority on its "grandfather" case. A recent examiner's proposed report recommended that the company's "grandfather" application be denied on the grounds that service had been inadequate and inefficient.

Calendar of Hearings

Mar. 18—Pennsylvania-Central Airlines, extension of AM34 to furnish Baltimore-Atlantic City service. Carlton Hotel.

Mar. 18—Hearing on air travel card plan, government travel discount provisions and other special travel discounts. Carlton Hotel.

Mar. 18—Braniff Airways, application to carry mail on Houston-San Antonio and Houston-Corpus Christi routes. Raleigh Hotel.

Mar. 21—Pan American Airways, route from Los Angeles to Mexico City. Mayflower Hotel.

Apr. 1—Continental Air Lines, determination of fair and reasonable air mail rates. Conference room A, departmental auditorium.

Apr. 8—Braniff Airways, Continental Air Lines, Essair Inc., A. J. Burke, on Braniff's San Antonio-El Paso via Brackettsville, Dryden, and Marfa, and Denver-Laredo via Colorado Springs, Pueblo, Amarillo, Lubbock, Big Spring, San Angelo and San Antonio; CAL's El Paso-San Antonio via Marfa, Alpine and Uvalde, and Pueblo-El Paso via Dalhart, Amarillo, Lubbock, Roswell, Hobbs and Carlsbad, and Essair's Amarillo-Houston via Lubbock, Big Spring, San Angelo and Austin, and A. J. Burke's San Antonio-Laredo. Raleigh Hotel.

Apr. 15—American Airlines, determination of fair and reasonable air mail rates. Carlton Hotel.

Apr. 22—Eastern Air Lines, Missouri Central, on routes from St. Louis to Washington via Evansville and Louisville. Conference room B, departmental auditorium.

Apr. 22—New York & Bermudian Air Line, route from Newark to Bermuda. Raleigh Hotel.

May 13—Continental Air Lines, United Air Lines, Braniff Airways and Mid-Continent Airlines, on CAL's application for Denver-Kansas City via Salina and Topeka; UAL's Des Moines-Denver via Kansas City, Topeka and Salina; Braniff's Denver-Kansas City, and MCA's Kansas City-Denver via Salina and Topeka. Carlton Hotel.

May 13—Eastern Air Lines, determination of fair and reasonable air mail rates. Roger Smith Hotel.

May 27—American Airlines, on route from Oklahoma City to San Diego. Carlton Hotel.

June 3—Boston-Maine Airways, extension of AM27 from Bangor to Moncton, N. B. Roger Smith Hotel.

June 10—Chicago & Southern Air Lines, determination of fair and reasonable air mail rates. Carlton Hotel.

June 17—United Air Lines, stops at Camden and Youngstown on AM1. Conference room A.

June 24—Delta Air Corp., determination of fair and reasonable air mail rates. Conference room A.

June 24—Oregon Airways, route serving Portland, Salem, Albany, Eugene, North Bend, Marshfield, Bend and Klamath Falls. Room 2062, Dept. of Commerce.

New Continental Service Approved

Continental Air Lines was granted permission Mar. 9 by the CAA to establish mail-passenger-express service to Roswell, Hobbs and Carlsbad, N. M., as part of its operation on AM29, Denver-El Paso.

The Post Office Dept. had certified that the needs of the postal service required transportation of air mail over the route, and on Jan. 20 CAA Examiners C. Edward Leasure and Robert J. Bartoo issued a proposed report recommending its establishment.

"The certification of the Postmaster General relative to postal needs is obviously entitled to great weight, particularly where it is supported by evidence that a prospectively substantial volume of mail will be transported in such service," the CAA's decision said. "The weight to which such a certificate is entitled is due to the informed policy and expert knowledge of the Post Office Dept. on the subject and the clear intent of the Act."

"It is, nevertheless, apparent that the certificate of postal needs alone cannot determine the broader question of the public convenience and necessity, and that it is only on the basis of this latter finding that we have the power under the Act to issue or amend a certificate in order to provide for the additional service with respect to which certification may be made."

Joseph Ferris Heads Northwest Publicity

Appointment of Joseph A. Ferris, Minneapolis newspaperman, as director of publicity for Northwest Airlines, was announced Mar. 2 by Croil Hunter, president. Ferris was a member of the staff of the *Minneapolis Tribune* and during the last year has been a news commentator on WTCN.

Bismarck-Minot Line Recommended for Mid-Continent

Extension of Mid-Continent Airlines' AM26 from Bismarck to Minot, N. D., was recommended Mar. 9 in a proposed report released by CAA Examiner Thomas L. Wrenn.

The 105-mile route was provided for in section 401(e) (2) (B) of the Civil Aeronautics Act, and it was not necessary for the carrier, in applying, to prove convenience and necessity. Examiner Wrenn found that MCA is fit, willing and able to perform the service.

"From a practical standpoint the operation of this mileage as an extension of route 26 would be in the public interest," the report said. MCA witnesses at the hearing pointed out that Bismarck-Minot should be operated as an extension rather than a separate route because the area is sparsely populated and the communities relatively small.

It was also testified that operation as part of AM26 would result in a reduction of the present cost per mile on the route from 54.74¢ to 53.12¢, or 01.62¢ per mile, by reason of the ability to apportion indirect flying expense over a greater mileage than now operated.

Lockheed 14's as Freighters

TACA of Central America, which recently purchased five Lockheed 14's, is converting three of the ships into freighters carrying four tons of cargo each. Two passenger ships will be used on the San Salvador-Costa Rica route, while the freighters will be used in Guatemala, Nicaragua and Honduras. TACA now has 56 aircraft, of which five are Lockheed 14's and 26 are Fords.

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TWA MAIL RATE CASE REOPENED

Brief Hearing Held to Consider Pay
for New Service on
Route 44

Transcontinental & Western Air Inc.'s mail rate case on which hearing was held Aug. 28-31, 1939 (AMERICAN AVIATION, Sept. 15, 1939), was reopened, Feb. 29, to receive evidence relevant to AM-44, the company's new mail service, Kansas City-Chicago-New York and Kansas City-Chicago-Pittsburgh, operated at present without a mail rate. Testimony during the two-hour session before CAA members Robert H. Hinckley, chairman, Harlee Branch, G. Grant Mason Jr., and Edward P. Warner, was given by Jack Frye, TWA president, E. L. Talman, vice-president-treasurer, and V. P. Conroy, vice-president-traffic.

Discussing the competition TWA faces from American Airlines and United Air Lines, Frye pointed out that in 1939 United carried more than 25,000 local passengers between New York and Chicago, American more than 26,000 and TWA only 9,088. To meet the competitive situation TWA will gradually increase schedules to tap the remaining traffic potential, and attract passengers not now using air service, Frye indicated. Conroy revealed plan of the company to operate a fourth transcontinental flight, probably by Apr. 1.

In an exhibit introduced by Talman, the \$927,612 loss for the year ending June 30, 1940, estimated at the original hearing last August, is revised downward to \$426,089, the latter figure including actual net revenue of \$146,023 for the last half of 1939. Loss for January-June, 1940, is forecast at \$372,112.

Since the latter half of 1939 was exceptional in air transport history, Frye asked that it not be used as a base for determining TWA's mail rate, as he discussed the unusual weather conditions which permitted 98.9% operating performance, the perfect safety record of the domestic carriers and various typical factors that prompted the substantial reduction from the earlier estimated operating loss for the current fiscal year.

Additional expenses not stressed at the previous hearing were mentioned by Frye as deserving weight in determining the mail rate. Included were the cost to TWA of moving its operating base, now at Kansas City, to one end of the line so that planes operating from coast-to-coast could be more readily serviced; hangar construction expense at Chicago, Los Angeles and Philadelphia; a \$90,000 airport at Grand Canyon, and increasing charges for airport rentals at Amarillo, Kansas City, Los Angeles, Philadelphia and New York.

The five Boeing 307 aircraft, scheduled for early summer operation, will bring further expense that the company can not estimate, Frye stated, adding that as a safety measure ultra high frequency, two-way radio equipment is being seriously considered for installation in present planes to eliminate static hazards to ground-plane communication.

Request was made by Frye that the mail rate prescribed for AM-44 be made retroactive to Dec. 22, 1939, when the new service began.

Counsel were Gerald B. Brophy, TWA, and E. T. Nunneley Jr., CAA.

Asst. to Supt.

Appointment of Donald R. Eldridge, graduate of U. S. Naval Academy, as assistant to the superintendent of operations of TWA, has been announced by L. G. Fritz, vice president-operations. Eldridge, a veteran plane dispatcher who joined TWA in 1935, had been a flight superintendent at Kansas City until his promotion. He is a skilled meteorologist and will continue his research work in the weather field under the direction of his new superior, John Collins, superintendent of operations.



Pay for Horta Mail Asked in Amendment

A 15-minute hearing was held Mar. 6 before CAA Examiner Francis W. Brown on the question of amendment of Pan American Airways' trans-Atlantic rates to provide for Horta-bound excess mails.

As long as such mail for the island was included in the 1,600-lb. initial load, it was explained, no question as to payment arose, but when loads were over 1,600 lbs. it was not clear what excess pay was to be forthcoming.

After a brief explanation of the situation by Samuel E. Gates, CAA attorney, Examiner Brown issued his recommendation at the hearing instead of in proposed report form. He recommended that the portion of the Pan Am rate reading: "The foregoing rates are for a maximum mail load of 1,600 lbs. per trip, and petitioner shall be paid \$4 per lb. per trip outbound for any mails carried in excess of such load of 1,600 lbs. per trip, provided such trip shall have been completed at least as far as Foynes, Ireland, or Lisbon, Portugal," be changed to:

"The foregoing rates are for a maximum mail load of 1,600 lbs. per trip outbound, and petitioner shall receive additional compensation for any mails transported in excess of such load of 1,600 lbs. as follows: On trips proceeding as far as Lisbon, \$4 per lb. for outbound mail transported from the United States to Horta . . . or Lisbon, or points beyond; on trips proceeding as far as Foynes, \$4 per lb. for mail transported from the United States to Foynes . . . or points beyond; provided that petitioner shall not be entitled to any compensation in excess of such \$4 per lb. for the transportation of mail in excess of 1,600 lbs. per trip to points beyond Lisbon . . . or Foynes, as the case may be."

Both Gates and Henry J. Friendly, Pan Am attorney, were in agreement on the recommendation, which was made retroactive to May 20, 1939, date on which trans-Atlantic service was inaugurated.

Call for Skilled Mechanics to Meet TWA Expansion

TWA has issued a call for skilled mechanics holding airplane and/or engine overhaul licenses from the CAA to meet its expansion program which will increase the line's average monthly flying miles from 1,000,000 to 1,500,000 by June.

William Maxfield, TWA's superintendent of maintenance, said the mechanics will be thoroughly schooled in maintenance work on Douglas DC-2's and DC-3's as well as Boeing 307 Stratoliners which will be placed in service late this summer.

New mechanics will receive their preliminary on-the-job training at TWA's base at Kansas City, Mo.

Asphalt Runways for Washington Port; Bids Asked for Buildings

Bids for construction of the \$2,500,000 glass-fronted terminal building for the new Washington National Airport now under construction, were called for Mar. 6 by the Federal Works Agency to be opened Mar. 27. The building is to be 520 feet in length with a tower rising to a height of 73 feet.

Meanwhile bids were opened Mar. 1 for construction of runways and aprons, the apparent low bidder being Warren Bros. Road Co., Cambridge, Mass., with a total of \$211,190. Approximately 80,000 tons of asphalt paving will be used, the first period of work beginning about Apr. 1.

The airport's flying surface is expected to be ready for use by July 4, with a grand opening scheduled for Labor Day.

EAL Plans Texas Hangar

San Antonio, Tex.—Eastern Air Lines has completed plans to build a \$15,000 hangar at Stinson Field to house one of its eight Douglas DC-4 transport planes, which it will place in service early in 1941. The hangar will have an entrance 130 ft. wide and will be 110 ft. deep. In addition to the DC-4, DC-3 and DC-2 ships will be stored in the hangar.

CAA May Buy AA Beacons

American Airlines and the CAA have been negotiating for sale to the latter of beacons owned by American between Buffalo, N. Y., and Newark, N. J., and between Phoenix, Ariz., and Los Angeles. The beacons were installed by American.



Southwest to Fun and Fortune

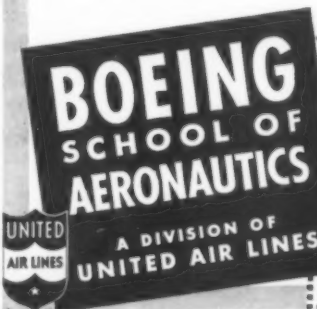
- There's a friendly frontier of fun and fortune to which Braniff's new 21-passenger 1940 fleet offers you luxurious passage in a few pleasant hours.
- Waiting for you along hundreds of miles of sun-drenched surf at Corpus Christi, Galveston or Brownsville—there's the fun of fighting a whirling, splashing dervish at the end of your creaking line.
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Name Company

Address

CAA UPS PAN AM'S BERMUDA MAIL PAY

Company Receives \$1,700 Per Outbound Trip; Was Getting \$,00001 Per Lb.

A rate of \$1,700 per outbound trip for the carriage of air mail between the United States and Bermuda by Pan American Airways was announced Mar. 2 by the CAA.

The rate, which is retroactive to Nov. 19, 1938, date upon which PAA petitioned for an increase, is for 400 lbs. of mail, and the company will receive 75c per lb. on excess. PAA was being paid \$,00001 per lb., and had requested \$2.36 per outbound mile.

It was pointed out by the CAA that Pan Am had been granted temporary permission to use Bermuda as a stop on trans-Atlantic flights, thus increasing local U. S. Bermuda service. The CAA found, however, that rates set for the local flights should not contemplate any such continued use of Bermuda, except to make provision that in case trans-Atlantic schedules increased the frequency of Bermuda trips to more than twice a week no further payments were to be made.

"If the local Bermuda service alone be considered, on the basis of the forecasts herein given, and if that portion of the expense thereof which would in any event be required for the operation of the trans-Atlantic service be excluded from consideration, the aggregate of (1) revenue from sources other than United States mail and (2) of receipts by the Post Office Dept. on account of postage on United States mail at existing postage rates (\$4.60 per lb.) will cover 86.5% of the total expense of operating the service," the decision stated.

"After allowing for the effect of increased traffic on certain items of expense, it appears that a flat increase of approximately 19% in passenger, mail and express revenue volume at present rates would enable the operation to cover expenses. In the event of any substantial increase in these revenues, the rate herein fixed should be reduced to an extent which would reflect the reduced dependence of the air carrier upon air mail revenue, but at the same time would permit a part of the benefit from the increased revenue to redound to the carrier.

"The comparatively small cost to the government necessary to maintain this service, and a consideration of the national interest involved, lead us to the conclusion that it is proper to fix in this proceeding a rate calculated to permit the continuance of the local Bermuda service in its present extent and character."

The decision disagreed with PAA's position that the Bermuda line should be considered a "by-product" of the trans-Atlantic operation and that only such items of expense should be charged to that line as represent actual added expenditures for that service over and above expenditures necessary to conduct the trans-Atlantic operation alone. The CAA accordingly found that an apportionment should be made, in respect of jointly used facilities and commonly employed personnel, which would reduce by \$103,000 per year the estimated expenses of PAA's trans-Atlantic operation. The \$103,000 was added to PAA's estimates of annual cost of the local service. At 90% performance, this equals \$1,100 per trip.

Pan Am had estimated that in a normal future year, 2,195 passengers would be carried, producing revenue of \$142,675. The CAA, however, expressed the belief that the company will carry 3,200 with revenue of \$192,000.

AA Sales Supervisor

J. Harry Wiseman, who has been with American Airlines' sales organization since 1936, has been appointed sales supervisor of the company's Chicago office. During his service with American, he was employed in New York and Boston before his transfer to Chicago.



2 JOIN AD PROGRAM

Canadian Colonial and Parks Bring Total to 18 Contributors; Drive Wins Award

Canadian Colonial Airways and Parks Air College have joined in the cooperative advertising campaign sponsored by the Air Transport Association, making a total of 18 airlines and one school contributing to the campaign, Fowler Barker, ATA secretary, revealed recently.

He also stated that the cooperative advertising drive won the annual award presented by *Advertising and Selling* magazine as the outstanding advertising campaign of 1939.

Advertising lineage used by the airlines is now greater than that used by any other transportation medium, Barker said. The association has a budget of \$300,000 for its cooperative campaign of 1940-41, he added.

ADVERTISING

Credit to All Media

James S. Robb, Arizona sales manager for American Airlines, speaking before members of the Phoenix Advertising Club recently, attributed increases in passenger travel over his company's lines in recent years to intensive advertising which makes use of all available media.

Newspaper Concentration

United Air Lines will continue to use newspapers as the major medium in its 1940 promotion program, it was announced at the line's annual sales conference in Chicago. Schedule will include 65 newspapers in 38 cities, in addition to magazines and business papers. Copy in cities served by competing lines will stress UAL's service, speed and economy; copy in other cities will be educational. Agency is N. W. Ayer & Son Inc.

EAL Promotes Sleepers

Half and quarter pages in 73 newspapers throughout its system in 40 cities are being used by Eastern Air Lines to announce inauguration of sleeper service between New York and Brownsville. Full pages were used in Mexico City and Tampico newspapers. Account is handled by Federal Advertising Agency.

One Cent a Mile

Flying a Bellanca Cruisair, Art Bussy recently made a 2,835 mile mid-western trip for a total operating cost of \$32.78, the company has reported.

Revenues from excess baggage and express were estimated by the CAA at \$7,000 and \$1,200, respectively. PAA's revenue from foreign mail was estimated at \$13,000, bringing total annual operating revenues to \$213,200. The CAA allowed direct operating expenses of \$171,264 against PAA's estimate of \$162,264, while direct and indirect totaled \$370,000, resulting in operating deficit of \$156,800 yearly.

CONDOR DISAPPROVED

CAA Turns Down 'Grandfather' Application for Alameda-Monterey Line

Finding that Condor Air Lines did not continuously operate in interstate air transportation from May 14 to Aug. 22, 1938, the CAA on Mar. 9 denied the company's application for a "grandfather" certificate on its route between Alameda and Monterey, Cal., via San Francisco and Salinas.

In taking action, the CAA upheld the examiner's report of C. Edward Leasure, which stated: "The testimony of applicant's president shows clearly that applicant was not an air carrier on May 14, 1938 (operations did not commence until May 19). The operating of aircraft over the route covered by the application was discontinued on Aug. 12, 1937, and all aircraft owned by the applicant were sold by Nev. 3, 1937." Operations were again started on May 19, 1938, rather than on May 14, not because of conditions beyond the carrier's control, but simply because of a decision of Condor's officers, Leasure said.

NEW MIAMI AIRPORT

Super Terminal Scheduled for Opening Jan. 1, 1941

With more paved runway space than any airport in the world, the new Miami master airport is expected to be completed for opening Jan. 1, 1941. Runway lengths will total 33,600 ft. or 6.4 miles, more than the runway area of New York's new airport. Two runways will extend to 8,000 ft., approaching the length of the main runway at the Boise, Ida., Airport which has 8,800 ft.

Total cost of the Miami terminal will be \$1,155,725, with WPA and the city splitting the cost. There will be eight runways covering 16 points of the compass, running criss-cross and parallel over 870 acres.

Gail Gets Professorship

Albert Gail, who escaped from Germany three years ago and joined United Air Lines as a project engineer, has been appointed assistant professor of aeronautics at Daniel Guggenheim School of Aeronautics at Georgia Tech, Atlanta. In Germany, Gail was an engineer for Bavarian Aircraft Works where he helped design Messerschmitt planes.

Individual Seat Lights

Individual reading lights for passengers in aisle seats have been installed on all Skylab and Skyalepper planes of TWA. Passengers in aisle seats can now reach directly overhead to make use of the individual hostess call button or to turn on the reading light.

Washington-N. Y. Trips

Addition by American Airlines Mar. 15 of two Washington-New York-Boston trips increases the Washington-New York service offered by American and Eastern Air Lines to 31 trips daily, making the route one of the best served in the U. S. American's new trips leave Washington at 1:45 and 4:45 pm, arrive New York 3:15 and 6:15, arrive Boston 5:54 and 8:44.

In connection with the added AA flights, Herbert D. Ford, the company's district sales manager at Washington, has prepared a blotter-size timetable showing in chronological order all Washington to New York-New York to Boston flights on both American and Eastern. AA's flights are shown in red, Eastern's in blue.

22% of Contract

When Pan American Airways began carrying U. S. Bermuda air mail at \$,00001 per lb. on Mar. 16, 1938, it was party to a three-year contract expiring Mar. 15, 1941. However, the recent CAA rate decision made the new pay of \$1,700 per outbound trip retroactive to Nov. 19, 1938, which was possible because the Civil Aeronautics Act canceled contracts. As a result of the retroactive payment, PAA operated only eight months at \$,00001 instead of three years. Such operation amounts to approximately 22% of the contract.

CONVERTING WOMEN

Braniff Creating New Air Travel Enthusiasm Through Sky Parties Along Route

The T. E. Braniff family's precedent of inviting their friends, social and civic leaders in cities on the Braniff Airways route on courtesy flights and sky parties has created new air travel enthusiasm, especially among women, the company has announced.

Demonstration flights in new Douglas DC-3's in Dallas, Oklahoma City, Houston, Ft. Worth, San Antonio, Corpus Christi, Austin, Kansas City and Chicago were considered significant in arousing women's interest in flying. Eighty per cent of the women had never flown before. About 110 flights, on an average of 30 minutes, on which approximately 2,300 persons were taken for complimentary rides, were executed at an estimated cost of \$100 an hour flying time.

At Dallas, Fox Movietone screened that particular flying party in a national release.

Canadian Attaché Named

The Canadian government has appointed Air Commodore W. R. Kenny as air attaché to the Canadian Legation in Washington. "His duties will include reporting on aviation developments in the U. S. particularly sources of supply for Canadian war needs," the assistant trade commissioner of the Dept. of Commerce reported from the Ottawa office.

Beat Frequency Oscillators

Installed on United's Planes

Beat frequency oscillators, which operate on the same principle of sound pulsation as a piano keyboard, have been installed on the long wave radio range receivers in all United Air Lines planes as a further aid to pilots in making direction findings. It has been announced by J. R. Cunningham, director of communications.

The oscillators produce a beat which increases the signal to noise ratio, thus making indistinct signals clear and readable, and decreases the width of the null which the pilot measures in taking a bearing on his position by rotating the loop antenna.

United claims to be the first airline to add the oscillators to its radio equipment.

UAL Simplifies Radio Operation Through Dual Output System

Now being installed on all of United Air Lines' twin-engined transports is a dual output system which simplifies radio operation to the turning of a switch.

The device, developed by United's communications laboratory, is a switchboard on which are assembled control switches of the transmitter, communications receiver, marker beam receiver, radio range, beat oscillator, directional loop antenna, auxiliary receiver and other radio equipment. Control panel is eight inches square and makes all radio facilities available to pilots without resorting to adjustments.

Device includes twin sets of switches, and either captain or first officer may operate any or all switches without change of volume or facilities in the headphones of the other pilot.

Bureaucrats 'Lay the Hand of Tyrant' Over Aviation, Blasts Col. McCormick

Development of aviation today is "hampered by an organization of bureaucrats, none of whom could invent any part of an airplane, design any part, obtain financial backing for an airplane company, or administer one, if formed," according to Col. Robert R. McCormick, editor and publisher of the *Chicago Tribune*.

Delivering a Lincoln Day address to the Lincoln Club of Jackson, Mich., on Feb. 15, Col. McCormick charged that

the "bureaucrats" are there "not to help, not to regulate, but to lay the hand of the tyrant over this form of transportation."

Col. McCormick called the 1934 air mail contract cancellations "as outrageous an act of tyranny as any Hitler ever perpetrated" and stated that the 13 Army Air Corps officers who lost their lives carrying the mail were "victims of tyranny, martyrs to communism."

CAA TO REVISE RUNWAY LIGHTS

3 Manufacturers Place Units on Same Runway at Indianapolis; Pilots Express Preference

As the result of an unusual demonstration at Indianapolis last month, the CAA is now in the process of revising its specifications on contact lights for airport runways, and all manufacturers have agreed to meet such specifications.

The unusual demonstration saw the three manufacturers of runway lights furnish 10 units each for installation side by side on the same runway. Pilots flying into the Indianapolis airport were then asked to judge the various makes and express their preference.

Opinion favored the smooth-top contact light manufactured by Westinghouse Electric & Manufacturing Co., Cleveland. The Westinghouse unit, using a 320 lumen lamp, gave 800 candlepower light up and down the runway, 65 candlepower across and 50 candlepower away from the runway. The beams were only seven degrees above the horizontal.

Following the demonstration, a meeting of the aviation lighting committee of the Illuminating Engineering Society was held at Indianapolis on Mar. 1. In informal conferences at the meeting, manufacturers informed Cory Pearson, CAA airport lighting engineer, that they would meet specifications based on the demonstration.

It is probable that such specifications will follow the Westinghouse light. However, beams are to be only four degrees above horizontal instead of seven. It is also probable that lights used will be white on the first portion of a runway and yellow on the last 1,500-2,000 ft. When landing in bad weather, a pilot passing from white to yellow lights will then know approximately how much runway remains. Glass in the lights will be so arranged that the white-yellow combination prevails in either direction.

Companies in the Indianapolis demonstration were: Westinghouse, with both a sodium and a smooth-top white light; Pyle National Co., Chicago, with a new type light, and Crouse Hinds Co., Syracuse, with a flanged light.

Also established at Indianapolis was the apparent impracticability of using sodium lights for such runway illumination. It was explained that such lights take 7-8 minutes to illuminate in warm weather, and 15 minutes in cold, and cast only a yellow beam. They also use a 150-165 watt bulb compared with 25 watts in other systems.

Donner-Ide

Miss Dora Browning Denner of Montreux, Switzerland, and John Jay Ide, technical assistant in Europe of the NACA, stationed at the American Embassy, Paris, were married in Philadelphia on Feb. 12.

First Student Killed in Training Program

First fatality of the CAA's civilian pilot training program occurred Feb. 14 when Sam Kay von Schrittz, of Kansas State Teachers' College, was killed at Pittsburg, Kan., while practicing spins.

The student, who had 5½ hours solo time and was in the advanced stage of the program, crashed in a dive which followed a spin. The right wing of his Cub folded shortly before hitting the ground. Von Schrittz had successfully spun the ship the day preceding the crash.

The plane's fire extinguisher was found 100 yards from the wreckage advancing the possibility that the extinguisher may have come loose in the cabin during the spin, and that the ship may have gone into a dive while von Schrittz sought to retrieve it. The wing is thought to have folded at about 150 mph., a higher speed than that for which the plane is stressed. The Air Safety Board, however, has not yet released an official accident report.

CAA officials are pleased with the excellent safety record of the program. In an effort to further keep the necessity for safety before the students, a series of posters are to be distributed for display at the various airports in the program. "Be smart—fly safely" will be the posters' theme.

Maj. B. S. Graham Joins Bennett Aircraft Corp.

Maj. B. S. Graham, formerly vice-president and chief of operations in Oklahoma for Curtiss-Wright Flying Service, has been appointed technical adviser for Bennett Aircraft Corp., Ft. Worth, and has assumed his duties. The company is erecting a plant two miles north of the municipal airport for manufacture of a plastic plane developed by Capt. Frank C. Merrill and F. W. Bennett, oil man.

A Texan by birth, Maj. Graham saw service overseas, spent eight years from 1920 to 1928 with the athletic department of the University of Oklahoma, and organized Graham Flying Service in 1928 which was later absorbed by the Curtiss-Wright service. In 1930 he turned his attention to the oil business.

Shortage Delays Production

Los Angeles, Feb. 28—Because of delay in obtaining certain parts, particularly castings, North American Aviation Inc. at Inglewood, Cal., has temporarily paid off 100 men of its total 5,100 payroll. At the same time a serious shortage in engines is reported, and some 14 ships are standing on the assembly lines complete but for powerplants.

Despite rapid progress made on airplane and airplane engine deliveries, the industry's backlog of unfilled orders continues to increase sharply. Industry sources now give the total as over \$700,000,000, an increase of a hundred million in the last three months. If the Allies place all of the orders they have been contemplating, the backlog will go up to a billion dollars, although there is some feeling in the industry that orders will not be pyramided on the books at one time.

New Executives Named by Vega; Plant Location Moved, Personnel Added

Following the recent appointment of Thomas H. Corpe as general sales manager of Vega Airplane Co., General Manager H. E. Ryker on Mar. 1 announced a number of major appointments in executive personnel of the Burbank, Cal., organization.

Cecil Mulligan, for the last two years production manager for Vultee Aircraft Inc., on Mar. 1 became factory manager for Vega in charge of manufacturing, tooling and production planning departments of the company's new factory at San Fernando Blvd. and Alameda St. in Burbank. Mulligan has spent 20 years as factory superintendent, in tooling departments and other industrial work.

Alfred Corte, known as an armament expert in aircraft and Army circles, has been placed in charge of a special department which is developing armament for aircraft in power turrets, fixed guns and bomb rack installations. Corte was with Douglas Aircraft Co. Inc. for six years, and has just returned from Sweden where he supervised armament installations on military aircraft.

Ryker also revealed that Joe Seamans, formerly with Boeing Aircraft Co. and the last six years chief engineer for Solar Aircraft Co., will join Vega as staff engineer on Mar. 15, and that Reagan Stunkel, former maintenance manager for Braniff Airways, has been appointed chief inspector.

Other Vega executives under the new set-up include Roy MacKenzie, factory superintendent; Jim Steves, production planning manager; Jack Wasall, chief engineer; Cass Gurney, sheet metal department superintendent, and Russell Pearson, assistant comptroller. Gurney, eight years with Consolidated Aircraft Corp. and one year with Lockheed Aircraft Corp., and Pearson, formerly auditor for Vultee and Interstate Engineering Co., are recent appointments.

These additions in personnel accompanied the moving of the Vega company from its former location adjacent to the Lockheed plant. Company added \$100,000 in new equipment including a battery of drop hammers, compressors and machine tools, increased its personnel from 400 to above 700 and raised its backlog beyond \$2,500,000, all within the first month after migration to the new location was begun on Jan. 2.

New Denver Law Firm

Terrell C. Drinkwater, well known Denver attorney, has become a member of the law firm of Newton & Davis, now known as Newton, Davis & Drinkwater, which will specialize in aviation. Offices are in the Colorado National Bank Bldg., Denver. Drinkwater has handled cases in Washington before the CAA for Continental and Mid-Continent Airlines, and is a member of the Colorado Aeronautics Commission. Quigg Newton Jr., also of the new firm, is well known in western aviation circles, having represented Western Air Express in the recent United Air Lines-WAE merger case.

NAA Moves April 1; Ships Historical Books to N. Y.

When the National Aeronautic Association moves Apr. 1 from its headquarters on Dupont Circle in Washington, to new offices in the Willard Hotel, it will ship its extensive collection of aviation books, trophies, models and historical documents to the Aeronautical Archives now being set up in 30 Rockefeller Center, New York, under the direction of Maj. Lester D. Gardner. The collection will be loaned to the Archives until such time as there may be established an aviation museum in the national capital.

Mrs. Findley Improved

Mrs. Earl Findley, wife of the editor of U. S. Air Services, who suffered a brain hemorrhage early in March, was greatly improved and on the way to recovery as this issue went to press.

Airline Personnel

Recent AA transfers follow: Warren Brice, mechanic, New York to Buffalo; Kenneth Burnham, from parts to mechanic, New York; Martin Gate, from line maintenance to instrument overhaul, New York; Donald Galbraith, from apprentice mechanic, NY, to line maintenance, Chicago; Vincent Bonderud, from apprentice agent at Providence, R. I., to Dallas; E. S. Walden, from junior agent at Burbank, Cal., to Memphis, Tenn.; R. C. Mahoney, from agent at Ft. Worth to Boston; W. H. Haas, meteorologist, from Ft. Worth to Chicago; Robert Gignous, senior radio telegraph operator, from Knoxville, Tenn., to Burbank; B. S. Warner, captain, from Chicago to Burbank, and Granville Paules, meteorologist, from Chicago to Ft. Worth.

Capt. A. L. Boyd has been appointed asst. chief pilot at New York for American, according to an announcement by Hugh L. Smith, operations mgr. Capt. Vic Miller was named asst. chief pilot at Ft. Worth. Boyd has been with AA since Oct. 1934; Miller since May 1931. Ralph E. Hinkel, relief station mgr. at Kansas City, Mo., has been named TWA supervisor of education with headquarters at KC.

A. Osman has joined United's staff in New York City.

Robert E. Whitmer, TWA communications engineer at Kansas City, Mo., has been named system supt. of reservations, a newly created post. Assistant named to aid Whitmer are C. E. Bartholomew, chief ticket sales representative, and Mel D. Warshaw, reservations asst., both of KC.

American recently transferred James McGhee from senior radio telegraph operator, Ft. Worth, to ground station maintenance operator, New York; Thomas Scott Jr. and Edward Durning were promoted from apprentice commissary clerks to commissary clerks, NY; Erville Crain was changed from maintenance clerk to chief maintenance clerk, Chicago; B. P. Shaw was changed from radio telegraph operator to senior radio telegraph operator, Nashville, Tenn., and Homer Akers was promoted from junior radio telegraph operator to radio telegraph operator, St. Louis. Other changes involved Philip Gast and Henry Noth of the New York staff.

Charles E. Kaul, TWA's ticket sales representative, has been transferred to Phoenix, Ariz., to act as TWA's manager for Phoenix and the Arizona region.

New United passenger agent at Akron, O., is Cully Hammerstrom, promoted from steward at Cheyenne, Wyo.

First Officer W. J. McCray of AA recently was promoted to captain at Burbank, Cal. New American first officers based at Memphis, Tenn., are Harry Job and Ralph Burford.

Phares E. McPherrin, TWA captain domiciled at Chicago, on Feb. 15 was named a check pilot. He will continue to operate out of CG.

Lloyd Howard has left the Cleveland staff of United to join reservations at Portland, Ore., and has been replaced by D. Sherman Starr. Dick Persons has replaced Dick Lautmann, resigned, at Cleveland.

Lewis Gray and Boyd Faley, both of American, recently were promoted from radio telegraph operator to senior radio telegraph operator. Gray is located at Memphis, Tenn.; Faley at Oklahoma City, Okla. E. O. Crews was changed from station chief operator, Phoenix, Ariz., to senior radio-telegraph operator, El Paso, Tex.

INDUSTRY BACKLOG OVER \$700,000,000

Shoes for Baby

Under a novel promotion recently set up by Trimfoot Shoe Co. of St. Louis and TWA, a pair of baby shoes is presented to each mother who boards one of TWA's transports with a baby in her arms. The idea was worked out by John B. Reinhart Jr. of the Trimfoot Co. and C. A. Williams of TWA's passenger service department after Reinhart, on a recent flight via TWA, became interested in the number of mothers with babies flying airlines. It was reported that more than 50 babies less than two years of age are carried each month by TWA.

NAA Cuts Dues

The National Aeronautic Association has reduced yearly dues of chapter members from \$3 to \$1. Those members who wish to receive *National Aeronautics*, NAA publication, will pay an additional \$2. Until now there has been no option, all members paying \$3 each and receiving the magazine.

PFA Objects to New Airport Rules,

Says CAA Might As Well List Diets

The Private Fliers Association has entered "strenuous objections" to several proposed additions to the Civil Air Regulations and has so informed the Civil Aeronautics Authority. The proposed regulations pertain to airport rules, two of which read as follows:

"No landing or takeoff shall be made except at a safe distance from buildings and aircraft," and "No aircraft shall be taxed except at a safe and reasonable speed."

In a letter to Earl F. Ward, chief of the CAA's airways operation division, William W. Brinckerhoff, PFA secretary, asserted "it does not seem to us that the CAR should be cluttered up with page after page of detail."

First Owner



Howell F. Shepard, president of Watson-Park Co. of Boston, is shown seated in the cabin of his Bellanca Cruisair, the first of the new model Bellanca sold by E. W. Wiggins Airways Inc. of East Boston, Mass. Shepard is now receiving instruction from Wiggins. This view shows the door of the plane which is curved to include part of the roof, a feature to simplify entrance to and exit from the cabin.

"If you are going to promulgate a detail to the effect that an aircraft should not be taxied except at a safe speed, it is just as reasonable to promulgate a regulation to the effect that 'no pilot shall fly an aircraft solo immediately after breakfast, unless such breakfast shall have consisted of at least three separate courses with a protein content of XX', on the theory that a man's reactions are slowed up by an empty stomach."

FLYNN NAMED BY P & W

Appointment to Assistant Service Manager at East Hartford Made by Engine Company

Appointment of Furlong H. Flynn as assistant service manager in the East Hartford, Conn., offices was announced



Flynn

on Mar. 1 by Pratt & Whitney Aircraft Div. of United Aircraft Corp.

A native of Waterford, N. Y., and an alumnus of Cornell University where he studied engineering, Flynn first became associated with P & W in May 1929. From 1930 to 1934 he traveled as a service representative visiting plane manufacturers, Navy and Army groups and assisting in airline overhaul activities. He then returned to Hartford and took over supervision of the field service men and, in 1939, went to Europe in charge of service for that part of the world.

In his new duties he will be in contact with old acquaintances to whom "Tiny" Flynn is a familiar figure.

Douglas Lease Approved

Los Angeles—Approval of a 15-year lease with Douglas Aircraft Co. Inc. for an assembly plant at Los Angeles Municipal Airport was voted recently by the city council. The company will pay \$75,000 over the 15-year period for a 10-acre plot.

C. A. A. ACTIONS

(Pilot Certificates, Letters of Authority, Publications, Miscellaneous. For Airline Regulation, See Air Carrier Record. Serial Numbers of Orders and Dates in Parentheses.)

Pilots

Revocations

Chester L. Phillips Jr., Caddo Mills, Tex., private pilot certificate No. 62303 revoked. (Mar. 1, 408).

James Cashen, Batson, Tex., solo pilot certificate 71757 revoked for piloting an aircraft carrying a passenger other than a certificated instructor actually giving instruction, and other violations. (Mar. 1, 412).

Richard S. Stearns Jr., Tucson, Ariz., private pilot certificate 43718 revoked for piloting an aircraft over an open-air assembly of persons at an altitude of less than 1,000 ft., and other violations. (Mar. 1, 413).

R. S. Johnson, Houston, Tex., aircraft and engine mechanic certificate 3870 revoked. (Mar. 1, 414).

Suspensions

Howard F. Dutton, Montpelier, Vt., commercial pilot certificate 34505 suspended for a period of 90 days. (Mar. 1, 411).

Civil Penalties

The CAA (Feb. 23, 400) accepted certain offers in compromise of civil penalties incurred for violations of the Civil Aeronautics Act and the Civil Air Regulations, as follows: Vance Burchett, Corvallis, Ore., for piloting an aircraft on a civil airway although said aircraft did not possess an airworthiness certificate, \$50.00; Davis A. Murphy, Miami, Fla., for piloting an aircraft on a civil airway carrying a person other than a certificated instructor actually giving instruction, in violation of his student pilot certificate, \$50.00. Also (Feb. 23, 401), Abner W. Biberman, Los Angeles, Cal., for piloting an aircraft on a civil airway carrying a person other than a certificated instructor actually giving instruction, in violation of the terms of his temporary solo pilot certificate, and other violations, \$75.00; Otto E. Grow, Salt Lake City, Utah, for authorizing a person to whom he had given flight instruction to make a solo flight on a civil airway when said person was not possessed of a valid pilot certificate, and other violations, \$50.00.

Patrick B. McCarthy, Toccoa, Ga., for taking off from a control airport on a civil airway when the weather was below the minimum prescribed for instrument flight within a control zone, \$100.00; George Roper, Salt Lake City, Utah, for piloting an aircraft on a civil airway at an altitude less than 500 ft. above the ground and water over a migratory bird refuge, \$25.00; Milos J. Soukop, Burbank, Cal., for piloting an aircraft on a civil airway without being possessed of a valid pilot certificate, \$25.00; Lt. Charles F. Harrison, Edgewood, Md., for piloting an aircraft on a civil airway carrying a person other than a certificated instructor actually giving instruction, in violation of the terms of his solo pilot certificate, and other violations, \$50.00. Also (Feb. 23, 402), William R. Nason, Minneapolis, Minn., for piloting an aircraft on a civil airway while not possessed of a valid pilot certificate and on such flight for navigating said aircraft acrobatically without being equipped with a parachute, \$50.00. Under Mar. 1, 410, French R. Haile, Austin, Tex., for piloting an aircraft on a civil airway acrobatically at a height less than 1,500 ft., and other violations, \$100.00.

Referred to Dept. of Justice

The following case (Mar. 1, 409) was referred to the Attorney General for appropriate action under the Civil Aeronautics Act: S. Edward Thomas, Winchester, Va., for piloting an aircraft on and across various civil airways when said aircraft was not certificated as airworthy, in violation of the CAR.

Civil Air Regulations

The CAA (Mar. 1, 65) has adopted amendment 42 of the Civil Air Regulations prescribing that an applicant for a pilot certificate of competency, applying as a graduate of a course of flight instruction approved by the CAA, shall accompany such application with a recommendation from the applicant's instructor.

Earl Popp Appointed to Western Insurance Post

Earl C. Popp, well known pilot and formerly with the airport section of the Civil Aeronautics Authority, has been appointed special agent for northern California, Oregon and Washington, by Aero Insurance Underwriters.

Popp's territory includes San Francisco and the bay area. His headquarters will be in the offices of Ariel C. Harris, Pacific Coast manager of Aero Insurance Underwriters, Room 510, 201 Sansome St., San Francisco.

LG Assessed at \$35,100,000

LaGuardia Field, New York City, according to recent reports, is assessed at \$35,100,000, of which \$21,500,000 is on land. After certain legal technicalities are smoothed, property probably will be placed on tax exempt lists.

Frank Bellanca Reported Planning Plane Factory

J. M. M. Gillette, an associate of Frank Bellanca, was in Mobile, Ala., early in March studying sites of a new airplane manufacturing company which he says Bellanca will build. A sum of \$500,000 would be spent, Gillette told Mobile officials, for a plant to build both military and civil planes.

Frank Bellanca is a brother of G. M. Bellanca, president of the airplane company of that name at New Castle, Del. He was formerly vice-president and production manager of that concern. Recently he has been devoting his time to International Trading Corp. and Bellanca Aircraft Corp. of Mexico.

PAA Gets Nebraska Permit

Lincoln, Neb.—The state securities bureau has given Pan American Airways Inc. permission to sell capital stock up to \$25,000 in Nebraska.

Domestic Air Carrier Operations

(CAA Figures)

	December 1939	January 1940	January 1939	Percent Increase over January 1939
Companies operating	17	17	13	33.34
Companies reporting	17	17	18	4.44
Miles flown (rev.)	7,715,775	7,271,154	5,453,093	33.34
Passengers carried (rev.)	160,810	138,282	80,344	69.62
Available passenger seat-miles	114,117,613	110,166,337	73,725,933	49.43
Express carried (lbs.)	1,038,278	817,633	577,982	41.48
Express pound-miles	595,121,775	463,898,988	354,500,080	30.86
Revenue passenger load factor	56.97	50.14	46.70	7.23

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Pesco Appoints Ad Manager, Engineer



M. J. Phillips

Formerly with Glenn L. Martin Co., Baltimore, has been appointed engineer in charge of hydraulics for Pump Engineering Service Corp., Cleveland.

Howard Terbeek

Former assistant advertising manager of Pump Engineering Service Corp., Cleveland, has been appointed advertising manager of the company.

Study of Chicago's Place in Industry Causes Dispute; Tax Situation Hit

Mulligan's Investigation Gives Complete Picture of City's Chances to Attract Factories; Press Accuses Association of Censoring Findings

Considerable controversy arose in Chicago recently over a report of an aircraft manufacturing survey "looking to a larger concentration in the Chicago area of aircraft, engine, parts and accessory production," completed for the Chicago Association of Commerce by Denis Mulligan, former chief of the old Bureau of Air Commerce, now a member of Guy & Brookes law firm in Washington, D. C.

Shortly after Mulligan had submitted the report to the association, charges were made by Chicago newspapers that the association was withholding the survey from the public. The *Chicago Daily News* asserted that Mulligan refused to confirm or deny that the report says Chicago has no chance of attracting aviation plants as long as the city is ridden by a corrupt political machine.

The report, finally made public either in a revised form or after being rewritten, indicated that Chicago, at the time of writing, had virtually no place in the industry. Mulligan earlier had declared that he had no intention of revising or rewriting the report as suggested by Leverett S. Lyon, chief executive officer of the association. Oscar G. Mayer, the association's president, also had said that "it is up to us—the association—to edit it (the report) and issue a summary of it."

"Although the Association of Commerce has, in effect, suppressed the Mulligan findings," the *Daily News* said, "it is reported that he told the association that airplane manufacturers from coast to coast voted against moving their plants to Chicago, and even local investors said they wouldn't consider putting money into the industry out of fear that politicians would 'annex' the new plants as a 'playground for ward heelers,' to be loaded with political henchmen."

After the smoke of the alleged "censorship" had died down, it was found that Mulligan engaged by the Chicago association over six months ago to make the survey, had made a thorough study of the local problem, presented his findings in a complete and readable manner and concluded the report with a valuable summary and recommendations.

In the course of the study it was learned that several airline executives indicated, because of increasing traffic, they would soon erect additional hangar

space at Chicago Municipal Airport. At another point in the report it was stated that "on the broad question of Chicago airports, C. R. Smith, president of American Airlines Inc., has said that if airline traffic increases at its current rate through Chicago Municipal Airport, within five years Chicago will have need for three major airports to carry the load."

During the investigation Mulligan found that "one of the sharpest complaints leveled at the city was that there has been no individual or group in this area to whom men in the air industry could go to for help." In opposition to this, it was found that "the press of Chicago is air minded and generous in its coverage of aeronautics."

It was pointed out that much less than one per cent of the country's airplanes have been made in the Chicago area. "There is no airplane factory here at present, save one going concern," the report said. "It is a relatively new company which has progressed with a popular figure at its head in the person of Benny Howard. Needless to say, all possible aid and encouragement should be given to retain this lone standard-bearer and to Matty Laird, also of this city, known throughout the trade and long a builder of first class airplanes."

One of Chicago's great needs, Mulligan pointed out, it to interest Chicago capital in the industry.

Adverse publicity has been brought to the city because of the long delay in removing railroad tracks which bisect municipal airport, the report said.

Other items on the "debit side" are: The tax situation which "would act as a deterrent to the movement of aircraft manufacturing into the city"; an inadequate airport administration building, and city's inability to offer free land grants and tax-free concessions such as would be a major factor in attracting factories.

Seventeen recommendations concluded the Mulligan report, some of which are: Provide in Chicago a sub-section of the airworthiness section of the CAA; urge national senators and congressmen of the area to greater activity in the cause; provide new air navigation facilities, structures and services for non-scheduled and private flyers; provide at least one airport primarily for industrial use; take action at once to provide another major

Bellanca Enters Plastic Field With Own Process; Plans New 4-Place Ship

Bellanca Aircraft Corp., is the latest aircraft company to announce adoption of the so-called "plastic" airplane construction. In its annual report issued from the plant at New Castle, Del., the Bellanca company stated that it has received approval from the Civil Aeronautics Authority on its exclusive plastic construction process and is beginning to apply the process in construction of commercial planes.

The Bellanca process is plastic bonding, using synthetic thermo-setting resins. It is easy to apply, the company said, and the resulting fabricated units are rot-proof, fungus-proof, unaffected by extremes of temperature or the common chemicals. "Light, economic structures having great strength and extreme long life are thus assured."

Like the plastic processes developed by Col. V. E. Clark and Eugene Vidal, the method used is to glue strips of wood together by applying heat and pressure in molds. Various kinds of synthetic resins are being used. Not only does this method open up the possibilities of fast and cheap production, but the resulting fabricated units are immune from fungus growth which has been something of a problem in past construction. Although the term "plastic" is actually a misnomer, this is the name being applied generally to this process.

During 1939 Bellanca pursued three developments, of which the plastic process was one. The others were the Bellanca Cruisair low-wing monoplane and an observation type plane for the U. S. Army Air Corps.

"While in this period of war activity a majority of manufacturers, especially those who already had types developed for military service, are concentrating their efforts in military plane sales," the company said, "Bellanca, while paying considerable attention to the military market and being successful in securing a contract from the Army Air Corps for prototype observation airplanes, has put its major effort in a long-trend development of commercial airplanes."

The company said it has commitments of upwards of 157 three-place Bellanca

Cruisairs, the low-wing full-cantilever monoplane with retractable landing gear and cruising speed of 120 mph. which appeared last year. Planned for 1940 is a four-place sister ship of greater horsepower.

Culver Two-Place Job, Powered by Continental, Introduced at \$2,395

A new two-place, closed low-wing cantilever monoplane with retractable landing gear, known as the L-CA DeLuxe, has been announced by Culver Aircraft Corp., Columbus, O., at a list price of \$2,395 at the factory.

Powered by a Continental A-75, the new Culver has a fuel capacity of 20 gallons; oil capacity is one gallon, and fuel consumption at cruising speed is 4.35 gal./hr. High speed at sea level is 145 mph.; cruising speed at sea level, 130 mph.; cruising speed at optimum altitude of 7,000 ft., 140 mph.; landing speed, 45 mph.; climb at sea level, 800 ft./min.; service ceiling, 17,500 ft., absolute ceiling, 20,000 ft.; maximum range, 640 mi.

Wings of the L-CA are single spar type, fabric covered. Metal ailerons are fabric covered, and fuselage is stressed skin monocoque with welded steel tube engine mount. Fin and stabilizer are of the stressed skin type, and elevator and rudder are metal with fabric cover.

Additional data follow: Dimensions—length overall, 17 ft. 8 in.; height overall, 5 ft. 6 in.; wing span, 27 ft.; wheel tread, 6 ft. 7 in. Areas—wing, including ailerons, 120 sq. ft.; ailerons, 9.22 sq. ft.; rudder, 3.57 sq. ft.; fin, 3.77 sq. ft.; elevator, 5.26 sq. ft.; stabilizer, 12.40 sq. ft.

Weights—empty, 700 lbs.; useful load, 605 lbs.; maximum pay load, 307 lbs.; gross weight, 1,305 lbs.; wing loading, 10.88 lbs./sq. ft.; power loading, 17.40 lbs./hp.; useful load, 46.4% of gross weight.

Fire Jinx

Jack Lysdale, airplane mechanic of Mankato, Minn., is willing to believe anything these days. When the Mankato airport hangar burned down a few weeks ago, he lost two airplanes, several motors and his tools. He decided to set up shop in a downtown garage and began working on two more planes. Early one morning fire not only destroyed those two planes but four automobiles as well.

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Summary Again Delayed

The "Summary of U. S. Air Transport Operations for December" and the review of traffic, revenues and expenses of the domestic airlines for the calendar year 1939, scheduled originally for AMERICAN AVIATION, Mar. 1, are again postponed since the December report of Pennsylvania-Central Airlines Corp. had not been received by the CAA at time of writing.

These features will appear, however, in the Apr. 1 issue.

Boeing Has Elaborate Wind Tunnel Model of 307 That Nearly Flies

Top ranking among the new super wind tunnel models is an elaborate working model of the four-engined Boeing 307 Stratoliner, described by Edmund T. Allen, director of flight and research of Boeing Aircraft Co. at Seattle, Wash.

Costing \$16,000, it incorporates powered propellers and a complete system of remotely-operated flight controls for more accurate simulation of actual flight conditions. It is one of the most complete wind tunnel models ever built, according to Allen.

The Stratoliner model, so mechanically complete that it does almost everything but fly away, has a 10 ft. 9 in. wing span and a hollow fuselage that is packed full with electric motors, wiring and sundry devices. It serves as a mechanical guinea pig which gives engineers the answers they seek in aerodynamic research.

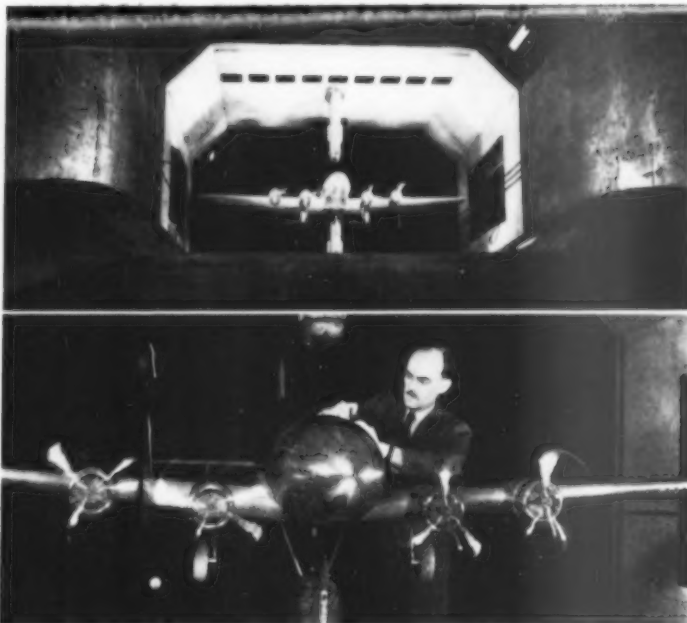
Allen has been carrying on the model research concurrently with his intensive flight test program of the 307 transport series.

A close correlation between wind tunnel data and full-scale flight data has been achieved, Allen said, providing yardsticks for all future wind tunnel research. Not only has the present Stratoliner design reaped benefits of this testing procedure, but the work is also playing an important part in the development of future designs, he pointed out.

The research model is a faithful miniature replica of the 33-passenger transports being produced by Boeing for TWA and Pan American Airways. It is one-tenth the size of the actual plane. The four engine nacelles of the model, each housing a compact 5-hp. electric motor, are machined out of cast dural. The motors drive 13.8-in. three-bladed propellers at speeds up to 20,000 rpm.

Inside the fuselage of the model are

To Simulate Flight Conditions



Mounted in place in the "throat" of the University of Washington's aeronautical research wind tunnel (top photo) is a new-type one-tenth size replica of the new Boeing 307 Stratoliner. Valued at \$16,000 this wind tunnel model is so mechanically complete that it does almost everything but fly away.

Below, Edmund T. Allen, director of flight and research for Boeing Aircraft Co., Seattle, Wash., is shown examining the model just prior to a test run in the Guggenheim wind tunnel at the U. of W. Among advanced features of the model are its electrically-powered propellers and its complete system of internally-operated flight controls.

two more small electric motors which operate the rudder, elevators, ailerons and wing flaps. During a test run in the wind tunnel, researchers can move any of the surfaces by remote control. Each change in position, including the deflection caused by force of the wind, is automatically indicated on the central instrument board.

Testing of this and other Boeing models has been carried on mainly in the Guggenheim wind tunnel laboratories at the University of Washington, Seattle. A crew of 30 persons has been kept busy transcribing the photographic data into charts and tables which provide the mathematical foundation of airplane design work.

Curtiss-Wright Builds

Curtiss Propeller Div., of Curtiss-Wright Corp., will build an addition to its newly acquired plant at Neville Island, Pittsburgh, construction starting immediately.

Lockheed Begins Apprentice Program to Train Craftsman

First class of 40 apprentices for Lockheed Aircraft Corp. "earn-as-you-learn" plan threatened "acute shortage skilled craftsmen, tool and production engineers" began Feb. 1, according to R. R. manager of industrial relations at Burbank plant, thereby giving recognition as the first air factoring company to establish prenticeship program approved by U. S. Dept. of Labor's federal commission on apprenticeship.

Describing Lockheed's to develop skilled aircraftmen, plains that the participants "thoroughly trained not specialist but in all phases. Thus he is trained not only part in the building of better but also in a more prominent part for himself."

Under the four-year plan between the ages of 19 and 21 are selected. Each apprentice indenture or agreement with the company, the regulations governing prenticeship being prescribed by the Shelley-Maloney Act of 1913, minimum working conditions terminated by federal laws and a manufacturer engaged in business and a contractor to carry out.

Crafts open to the apprentices those of aircraft machinist, builder, wood pattern and metal, sheet metal and tradesman, welder and painter and processor, upholstery trimmer.

The work week consists in the factory and four hours in room instruction, a total of 40 hours for which the apprentice receives at his regular rate, somewhat the beginning than the production workers. School subjects in mathematics, shop drafting, reading, materials and practical English, operations and safety methods and hygiene.

Lockheed's educational program which the apprentice plan began in 1935, began with the company's chief, Pedersen, former chief of the company, was re-employed to help need for instruction not only men but also of those at levels of the company's required assistance. Night classes wishing to learn more trade have increased in attendance about 70 in 1935 to 2,150, 7,000 employees during 1939.

Lockheed's apprenticeship stressed, is carefully scheduled a thorough background not occupation but in a broad training between the company's Aeronautical Mechanics, provides that "upon satisfaction of apprenticeship including both work and education, the apprentice shall be certified as a journeyman mechanic in his craft."

Hirsch, Lilienthal A.

The newly formed aviation department of Hirsch, Little & Co., 165 Broadway, New York prepared a booklet entitled "Aviation," a study of common stock manufacturing companies and the industry's future.

Sperry Buys Lockheed 'Flying Laboratory' for Flight Research

Sale to Sperry Gyroscope Co. Inc., Brooklyn, of a new twin-engined airplane designed as a "flying laboratory" was announced recently by Lockheed Aircraft Corp. of Burbank, Cal. The plane will be used for flight research by Sperry's engineering department in connection with the company's program of aeronautical research and development.

The new plane is believed to be the first of its kind built especially for research work. Generally similar to Howard Hughes' round-the-world plane, the new craft has an arrangement of the aircraft panel which allows quick and easy interchange of instruments. Through a special design which permits engineers to work easily behind the panel, this will allow relatively quick installation of experimental apparatus.

A separate compartment for a flight research engineer has been provided with a desk and chair so that performance of experimental equipment can be quickly observed and recorded, photographically if necessary.

Special observation domes or cupolas are provided to facilitate the testing of gyroscopic navigation equipment. Facilities for radio navigation experiments are provided to permit the test and development of new direction finding and instrument landing equipment.

CAA to Open Bids

Bids will be opened by the CAA Mar. 29 on installing lighting on the Memphis-Marianna section of the Memphis-Tampa airway, and on Mar. 28 bids will be opened on installing lighting on the Denver-Lexington section of the Denver-Grand Island airway.

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .

GOVERNMENT CONTRACTS

(Awards of \$10,000 and Over)

Release Date Shown

ENGINES, PARTS, ACCESSORIES

Goodyear Tire & Rubber Co. Inc., Akron, O., 3/1, brake & wheel assemblies, \$1,611.06 (Air Corps).

Hayes Industries Inc., Jackson, Mich., 3/1, brake & wheel assemblies, \$13,751.50 (Air Corps).

Bendix Products Div. of Bendix Aviation Corp., South Bend, Ind., 3/1, brake & wheel assemblies, \$22,806 (Air Corps).

Curtiss Aeroplane Div., Curtiss-Wright Corp., Buffalo, N. Y., 3/1, spare parts for airplanes, \$41,315.55 (Navy).

Wright Aeronautical Corp., Paterson, N. J., 3/1, airplane engines, \$95,135.84 (Navy).

Hayes Industries Inc., Jackson, Mich., 3/5, wheel & brake assemblies, \$121,343 (Air Corps).

Goodyear Tire & Rubber Co. Inc., Akron, O., 3/5, wheel & brake assemblies, \$1,292.52 (Air Corps).

Bendix Aviation Div., Bendix Aviation Corp., Bendix, M. J., 3/5, inertia starter engine assembly, \$54,504.45 (Air Corps).

Grumman Aircraft Engineering Corp., Bethpage, N. Y., 3/6, spare parts for airplanes, \$16,976.60 (Navy).

Sperry Gyroscope Co. Inc., Brooklyn, N. Y., 3/6, automatic pilots, \$950,136.25 (Navy).

MISCELLANEOUS

Humble Oil & Refining Co., Houston, Tex., 2/27, aircraft engine fuel, \$50,250 (Air Corps).

Noonan Construction Co., Pensacola, Fla., 2/27, concrete apron & warming-up platform at the main station & new base field (Saufley), \$58,929.50 (Yards & Docks).

Southern Equipment Co., St. Louis, Mo., 2/27, kitchen equipment at Naval Air Station, Pensacola, \$39,248 (Yards & Docks).

Pangborn Corp., Hagerstown, Md., 2/29, sand blast cabinet, \$15,095 (Air Corps).

American Chain & Cable Co. Inc., York, Pa., 3/1, jack assemblies, \$28,882.32 (Air Corps).

Singer Sewing Machine Co., New York, N. Y., 3/1, sewing machines, \$14,414.25 (Air Corps).

Pump Engineering Service Corp., Cleveland, O., 3/1, pump assemblies, \$25,830.74 (Air Corps).

Aero Supply Mfg. Co. Inc., Corry, Pa., 3/1, drilled head aircraft & eye bolts, \$3,315.83 (Air Corps).

Hayes Mfg. Corp., Grand Rapids, Mich., 3/1, portable photographic laboratory, \$1,742 (Air Corps).

O. Ahlberg & Sons Inc., Cranston, R. I., 3/2, barracks, officers' quarters, service distribution systems, etc., at Naval Air Station, Quonset Point, \$160,981 (Yards & Docks).

George H. Evans & Co., Philadelphia, Pa., 3/6, extension of seaplane hangar building & repairs, Naval Air Station, Cape May, N. J., \$13,840 (Yards & Docks).

Sythes Brothers Co., Charlotte, N. C., 3/6, extension to storehouse at Naval Air Station, Norfolk, \$59,800 (Yards & Docks).

Byrne Doors Inc., Detroit, Mich., 3/7, hangar doors at various Naval Air Stations, \$238,714 (Yards & Docks).

Standard Oil Co. of Kentucky, Louisville, Ky., 3/7, aviation gasoline, \$10,200 (Navy).

C. F. Pease Co., Chicago, Ill., 3/7, paper coaters, \$12,392.70 (Air Corps).

Westinghouse Electric & Mfg. Co., Dayton, O., 3/8, electric power system, \$1,988.81 (Air Corps).

American Optical Co., Southbridge, Mass., 3/8, flying goggle lens & frame, fashion assemblies, \$17,676 (Air Corps).

Aluminum Co. of America, Washington, D. C., 3/8, aluminum alloy, \$35,036.81 (Air Corps).

Ralph S. Herzog, Philadelphia, Pa., 3/8, superstructure for structural laboratory at Naval Aircraft Factory, Philadelphia, \$228,113 (Yards & Docks).

NEW YORK STOCK EXCHANGE

	Week Ended Mar. 2				Week Ended March 9			
	High	Low	Net Change	Sales	High	Low	Net Change	Sales
American Airlines	48 1/2	47 1/2	- 1/2	3,800	54 1/2	48	- 6 1/2	10,800
Aviation Corp.	6 1/2	6 1/2	0	9,700	7 1/2	6 1/2	- 1	20,400
Bendix Aviation	32 1/2	31 1/2	- 1	18,500	34 1/2	32	- 2 1/2	44,600
Boeing Airplane	24 1/2	22 1/2	- 2	3,800	24 1/2	23 1/2	- 1	4,900
Consolidated Aircraft	23	21 1/2	- 1 1/2	2,000	28 1/2	27 1/2	- 1	10,800
Continental Motors	4 1/2	3 1/2	- 1	27,800	4 1/2	4	- 1/2	25,100
Curtiss-Wright	10 1/2	10	- 1/2	37,800	11 1/2	10 1/2	- 1	184,700
Curtiss-Wright A	29 1/2	28 1/2	- 1	5,300	29 1/2	28 1/2	- 1	6,200
Douglas Aircraft	83 1/2	81 1/2	- 2	5,600	85 1/2	82 1/2	- 3	9,000
Eastern Air Lines	31	30	- 1	4,400	33 1/2	30 1/2	- 3	17,100
Ex-Cell-O	24 1/2	23 1/2	- 1	7,900	26 1/2	23 1/2	- 3	11,300
Lockheed Aircraft	30 1/2	29 1/2	- 1	10,000	31 1/2	29 1/2	- 2	22,000
Glenn L. Martin	41 1/2	39 1/2	- 2	8,800	44 1/2	40 1/2	- 4	61,200
Natl. Aviation Corp.	12 1/2	11 1/2	- 1	1,200	12 1/2	11 1/2	- 1	3,800
N. American Aviation	25	24 1/2	- 1/2	13,000	25 1/2	24 1/2	- 1	16,900
Pan American Airways	18 1/2	18 1/2	0	85,700	18 1/2	18 1/2	0	55,200
Sperry Corp.	44 1/2	43 1/2	- 1	4,300	45 1/2	44 1/2	- 1	8,000
Thompson Products	33 1/2	32 1/2	- 1	3,100	35 1/2	33	- 2 1/2	6,000
TWA	15 1/2	15 1/2	0	8,500	16 1/2	15 1/2	- 1	9,600
United Aircraft	47 1/2	47	- 1/2	8,700	49 1/2	47	- 2 1/2	21,300
United Air Lines	15 1/2	15	- 1/2	19,400	16 1/2	15	- 1 1/2	32,700
Wright Aeronautical	113	110 1/2	- 2 1/2	120	117	114	- 3	150

NEW YORK CURB EXCHANGE

	Week Ended Mar. 2				Week Ended March 9			
	High	Low	Net Change	Sales	High	Low	Net Change	Sales
Aero Supply B	5 1/2	5	+ 1/2	4,500	5 1/2	5 1/2	+ 1/2	4,700
Air Associates	2 1/2	2 1/2	0	1,300	11 1/2	11 1/2	+ 1/2	200
Air Investors	2 1/2	2 1/2	0	700	27 1/2	26 1/2	+ 1 1/2	1,100
Air Investors cv pf	7 1/2	7 1/2	+ 1 1/2	1,500	7 1/2	7 1/2	+ 1 1/2	300
Aviation & Transp.	3 1/2	3 1/2	0	2,800	3 1/2	3 1/2	0	3,200
Beech Aircraft	7 1/2	7 1/2	0	3,800	7 1/2	6 1/2	- 1	3,900
Bell Aircraft	24	23 1/2	- 1/2	2,100	24 1/2	23 1/2	- 1 1/2	2,900
Bellanca Aircraft	7 1/2	6 1/2	- 1	2,600	7	6 1/2	- 1/2	2,300
Breeze Corps.	6 1/2	6 1/2	0	1,100	6 1/2	6 1/2	0	1,700
Brewster Aero	16 1/2	14 1/2	- 2	17,700	16 1/2	15	- 1 1/2	17,100
Canadian Colonial	7 1/2	6 1/2	- 1	1,200	7 1/2	6 1/2	- 1	2,400
Fairchild Aviation	11	10 1/2	- 1/2	800	11 1/2	10 1/2	- 1	800
Fairchild Eng. & Air	5 1/2	5	- 1/2	15,700	6 1/2	4 1/2	- 2	30,800
Grumman Aircraft Eng.	16 1/2	15 1/2	- 1	1,500	17 1/2	16	- 1 1/2	3,700
Irving Air Chute	16 1/2	16 1/2	0	200	17 1/2	16 1/2	+ 1/2	800
Penn-Central Airlines	13 1/2	12 1/2	- 1	2,700	15 1/2	13	- 2 1/2	11,700
Republic Aviation	6 1/2	5 1/2	- 1	5,800	6 1/2	5 1/2	0	10,200
Roosevelt Field	2	2	0	100	3 1/2	2 1/2	- 1	3,300
Waco Aircraft	4 1/2	4 1/2	0	100	4 1/2	4 1/2	0	5,700
Western Air Express	4 1/2	4 1/2	0	1,000	5 1/2	4 1/2	- 1	5,700

terest not shown) decreased 20 to 337 through distribution. Robert Lehman, director, holds none directly, but is indirect holder through Lehman Brothers as above (property interest not shown). George J. Newman Jr., increased common through gifts 100 in Dec. 1938 and 100 in Dec. 1939, holding 239 common and 16 convertible preferred at end of that month.

Curtiss-Wright Corp.—John R. Dillon, director, acquired 100 common, holding that amount, and disposed of all of 10 class A. W. F. Goulding, officer, increased class A 200 to 400.

Eastern Air Lines Inc. common—Sidney L. Shannon, officer & director, acquired 1,000, holding that amount.

Fairchild Aviation Corp. common—S. M. Fairchild, director, decreased 200 to 112,856, and holds 26,100 through Mills Land Corp. (property interest not shown).

Lockheed Aircraft Corp.—Randolph C. Walker, director, increased 200 to 500 and holds 5,000 through Mrs. J. S. Walker (property interest not shown).

Glenn L. Martin Co. common—W. A. Crenning, director (Dec. 1939), received 100 as compensation, holding 1,204, and holds 100 through Vaughn Crenning (property interest not shown).

National Aviation Corp. common—Charles Hayden Foundation, beneficial owner, increased 51 to 54,700. Frank F. Russell, officer, acquired 100, holding that amount.

Republic Aviation Corp. A. P. de Seversky, director (amended report), decreased common 700 in Mar. 1939, increased 35,714 through exchange in April, decreased 5,000 in May, 6,500 in September, 6,800 in October, 14,000 in November, 3,900 in December and 500 in Jan. 1940, holding 42,029 at end of that month; also, in Apr. 1939 disposed of all of \$125,000 convertible demand notes through exchange.

Ryan Aeronautical Co. class A common—Earl D. Prudden, officer & director (Mar. 1939), increased 246 to 6,000.

Thompson Products Inc. common—S. Livingston Mather, director, increased 1,200 to 5,000.

Transcontinental & Western Air common—Hughes Tool Co., beneficial owner, increased 6,100 to 163,800.

United Air Lines common—Martin Anson, director, increased 300 to 700.

Vega Airplane Co. common—Lockheed Aircraft Corp., beneficial owner, increased 454 through transfer to 232,121.

Western Air Express common—L. H. Dierkotte, officer & director, bought 506 under employee and management purchase plans, holding 2,765. C. N. James, officer & director, bought 544 under employee and management purchase plans, holding 3,774.

Stock Holdings

Following is summary of transactions and holdings of officers, directors and principal stockholders of companies with equity securities registered filed with the SEC, Jan. 11 to 31. Unless otherwise indicated transactions were made in December and holdings are as of the end of that month:

Air Associates Inc.—F. LeRoy Hill, officer & director, decreased common 100 in Dec. 1939, increased 300 in Aug. 1939, 100 in September and 200 in December, holding 6,205; also increased 1st convertible preferred 25 in Feb. 1939, holding 102 at end of December.

Bellanca Aircraft Corp. common—Ben Howe, director, decreased 100 to 900.

Brewster Aeronautical Corp.—Dayton C. Brown, officer, decreased capital shares 200 to 6,904, and received 2,000 common warrants as compensation and gave away 1,000, holding 2,500. Ralph I. Singer, officer & director, decreased capital shares 500 in October and increased 1,000 in December, holding 512.

Curtiss-Wright Corp. class A—W. F. Goulding, officer, decreased 200 to 200.

Eastern Air Lines Inc. common—John R. Phillips, director, holds none directly; through holding company (property interest not shown) decreased 100 to 100.

Glenn L. Martin Co. common—Myron S. Shook, officer & director, received 30 as compensation, holding 300.

Thompson Products Inc. common—S. M. Mather, director, increased 1,200 to 1,200.

Western Air Express common—Alvin P. Adams, officer & director, decreased 1,200 to 8,250.

Following is a tabulation of equity holdings of officers, directors and principal stockholders of companies, all of whose securities have become registered with the SEC. Month covered indicated in each case:

United Aircraft Products—F. E. Crist, officer, none, Dec. 1939. Common: C. S. Wildman, director, 20, Dec. 1939. Common option: J. J. Bergen, director, through J. J. Bergen & Co. Ltd. (property interest not shown), 11,659, Dec. 1939.

1939; C. E. Gray Jr., director, 5,881, Dec. 1939.

Vega Airplane Co. common—Cyril Chappell, officer, 3,741, Dec. 1939; E. B. Gross, officer, 8,978, Dec. 1939; H. L. Hibbard, director, 5,487, Dec. 1939; W. P. Innes Jr., officer & director, 22,458, Dec. 1939; Carl B. Squier, director, 3,200, Dec. 1939.

Following is a tabulation of equity holdings filed by persons becoming officers, directors or principal stockholders of issuers having any securities registered. Month covered by report is indicated in each case:

Beech Aircraft Corp. common—F. C. Koch, director, 50, Dec. 1939.

Menasco Manufacturing Co. common—W. C. Collins, director, 100, Dec. 1939.

Following is official summary of transactions and holdings of officers, directors and principal stockholders of corporations with equity securities registered, filed with the SEC, Feb. 1 to 10. Unless otherwise indicated, transactions were made in January, and holdings are as of the end of that month:

Air Associates Inc.—F. LeRoy Hill, officer, and director, increased common 400 to 6,605, and holds 102 1st convertible preferred.

American Airlines Inc. common—Ralph S. Damon, officer & director, decreased 400 to 300. C. R. Smith, officer & director, decreased 1,000 to 1,570.

Aviation Corp. common—Aviation and Transportation Corp., beneficial owner, received 801 on claims, holding 1,101,297.

Bell Aircraft Corp. common—J. F. Schoellkopf Jr., director, decreased 100 to 1,200.

Bellanca Aircraft Corp. common—Ben Howe, director, decreased 200 to 700.

Brewster Aeronautical Corp.—Dayton T. Brown, officer, decreased 200 to 6,904, and holds 2,500 common warrants. James Work, officer & director, holds 103,404 common, and deceased common warrants 1,900 to 8,800; in trust (property interest not shown) decreased common 400 to 3,100.

Chicago and Southern Air Lines Inc.—A. Culbert, officer, increased common voting trust certificates 50 to 1,550 and holds 50 convertible preferred.

Consolidated Aircraft Corp.—John D. Hertz, director, holds none directly; through Lehman Brothers (property interest not shown), 11,659, Dec. 1939.

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Fortnightly Financial Review

Piper Aircraft Corp. Stock Sale

Oversubscribed; Nets \$241,740

In the period through Mar. 8 an offering of 33,290 shares of Piper Aircraft Corp. \$1-par common stock, through subscription warrants, under a registration statement filed Feb. 10, 1938, constituted the only activity in aviation security sales under Securities & Exchange Commission regulations. No registrations of new stock were made.

Details of the Piper transaction follow:

PIPER AIRCRAFT CORP.

The underwriters, J. E. Swan & Co. and Jackson & Curdis, offered the warrants at \$8.75 a share, with subscriptions reported received for more than twice the amount placed on the market.

Upon exercise by W. T. Piper of

warrants for 7,000 common shares, company will receive \$42,000; exercise by underwriters of subscription warrants for 33,290 shares will net company \$199,740. Proceeds will be added to general funds, for reduction of accounts and notes payable, to reduce bank loans, and possibly to reduce \$63,000 mortgage.

Capitalization at Feb. 1 represented following outstanding securities: (1) 21,500 no par, convertible preferred shares, cumulative at 6% per annum; (2) 90,526 of an authorized 250,000 \$1-par common shares; (3) warrants for 99,600 common shares; (4) \$63,000 principal amount mortgage bonds, 4%, due Nov. 17, 1940, to Nov. 17, 1942.

The original registration statement covered 21,500 convertible preferred shares; 244,437 common shares; warrants for 100,000 common shares.

Beech Aircraft Corp.—\$72,556 net loss for last quarter after charges, with net sales \$382,614. Current assets at Dec. 31 were \$838,260 with current liabilities \$688,493, against \$778,243 and \$485,780, respectively on Sept. 30, 1939.

United Aircraft Products Inc.—\$104,712 net profit after charges, 77¢ each on 135,612 shares, against \$71,340 or 53¢ in 1938.

Ex-Cell-O Corp.—\$872,382 net profit after charges, or \$2.21 each on 394,750 shares, against \$437,677 or \$1.11 each on 393,345 shares in 1938.

Thompson Products Inc.—\$1,232,199 net profit or \$3.90 each on 293,290 shares of no-par common after charges, \$50,000 provision for Canadian exchange and after dividends on \$5 cumulative convertible prior preference stock, compared with 1938 profit of \$435,241 or \$1.33 each on common stock. Net sales of 1939 were \$15,370,893, against \$10,682,313 in 1938. Consolidated assets Dec. 31 were \$11,634,922, with cash of \$617,007.

Eastern Air Lines Inc.—\$883,824 net profit after \$678,128 depreciation—amortization and \$230,000 for estimated federal income and excess profits taxes, or \$2.06 each on 429,873 shares, against 1938 profit of \$354,249 or 85¢ each on 416,666 shares. From Apr. 22, 1938, date of commencement of operations of present company (Predecessor, Eastern Air Lines Div. of North American Aviation Inc.) to Dec. 31, 1938, profit was \$224,646 or 54¢ each on 416,666 shares.

Revenues: passenger \$5,523,949, up 42.9% over 1938; mail \$1,733,540, up 14.5%; express \$212,728, up 31.6%. Revenue plane miles of 11,000,167 were up 32.9%. Mail pounds were 3,955,957, up 25.3%; mail pound miles were 2,106,756,000. Revenue passengers were 231,215, up 42.5%. Revenue passenger miles 102,904,292, up 44.2%.

American Airlines Inc.—\$1,467,751 net profit after provision for federal income taxes of \$330,300, against \$213,261 profit in 1938. There were outstanding Dec. 31, 1939, 303,320 capital shares. An additional 50,000 shares sold Dec. 14 were issued Jan. 31, 1940. Shares reserved for conversion of outstanding convertible debentures in amount of \$2,538,975 and due July 1, 1941, were 202,958 shares.

Revenues: mail \$3,682,231, up \$350,757 over 1938 and representing 24.4% of total revenues; express \$450,251 against \$353,617, up 27.3%; passenger, not stated in preliminary press release. Revenue miles were 19,170,018 against 15,314,792 in 1938. Revenue passengers increased 51.2% to 541,757 from 358,295 in 1938. Revenue passenger miles of 207,360,215 compared with 140,869,290, up 47.2%. Company carried 31.5% of total number of domestic air passengers carried by all lines in 1939 (30% in 1938).

Assets Dec. 31 were \$9,897,841; current assets were \$5,432,598 (cash of \$1,483,430); current liabilities were \$2,819,986.

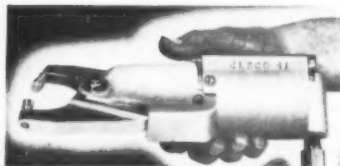
Bellanca Aircraft Corp.—Net loss \$206,262 on 229,650 \$1-par shares outstanding, with sales \$204,349, cost of sales \$234,409; selling expenses \$43,075; administrative & general expenses \$130,100; loss from operations \$203,235. Assets Dec. 31 were \$920,437; current \$431,903, with cash \$278,158. Inventories were \$137,016. Current liabilities \$31,511; long term debt \$87,165. Capital surplus \$983,465; earned surplus, deficit, from Jan. 1, 1933, \$411,354. Company reveals it is working on a plastic construction process for commercial planes.

FINANCIAL REPORTS

(For calendar 1939 unless otherwise specified)

Western Air Express Corp.—Net profit \$74,556 after charges, or 18¢ each on 404,000 shares, against net loss of \$12,531 in 1938. Revenues: cash passengers \$509,617; trade, express, passengers

Cleco Squeezer



Cleveland Pneumatic Tool Co. has introduced this 3½-lb. squeezer for aircraft riveting known as the Cleco 41. Measuring only 9¼ in. overall, the Cleco 41 is ideal for use in cramped quarters, it was pointed out, and will handle dural rivets up to and including ½ in. Tool is furnished with either "C" type or alligator jaws.

\$1.181; mail \$809,980; express \$45,249; other \$28,020; gross \$1,387,247. Operating expenses \$1,301,075. Net operating income \$86,172. Provision for federal income tax \$12,500. Balance sheet shows assets of \$1,109,787; current assets \$512,973, with cash of \$249,337; current liabilities \$258,246.

Transcontinental & Western Air Inc.—Net operating loss \$188,827 against loss of \$749,355 in 1938. Revenues: passenger \$5,195,789, or gain of 39% over 1938; mail \$2,403,724; express \$222,771; total \$7,906,924, against \$6,219,881. Expenses were \$6,927,824. Depreciation \$935,651. Ordinary taxes \$96,202. Loss from operations \$96,202. Further losses may accrue in 1st quarter of 1940, but general improvement for the year over the 1939 figure may be anticipated. Jack Frye, president, said.

Revenue per revenue mile was \$653, against \$626 in 1938. Mail revenue dropped from \$225 in 1938 to \$198 in 1939. Operating costs per revenue mile dropped from an average of \$6.97 in 1938 to \$6.62 in 1939. Revenue miles: 12,097,962, against 9,872,865 in 1938.

Aero Supply Mfg. Co. Inc.—Net profit \$138,501 equal after dividend requirement on \$1.50 cumulative Class A stock to 28¢ each on 412,461 shares of Class B, excluding 12,669 treasury shares. The 1938 net income was \$109,425 or 21¢ a Class B Share. Net sales were \$1,254,506 against \$1,069,774. Dec. 31 backlog: \$1,019,200.

Republic Aviation Corp.—Tentative net loss \$524,781 (including write-off of \$108,500 of deferred development expense from earlier period) against loss of \$553,366 in 1938. Operating profit of \$88,518 in last quarter was first black figure in history of Republic or predecessor, Seversky Aircraft Corp. Last period sales were \$739,177, and last eight months sales were \$822,060. Backlog on Mar. 1 was \$15,055,000. Deliveries of more than \$10,000,000 are forecast for 1940 by Wallace Kellett, president.

Ryan Aeronautical Co. & Ryan School of Aeronautics—Net profit \$90,728, or 24¢ each on 375,000 shares, against \$23,602 (8¢ each on 300,000 shares) in 1938.

Bell Aircraft Corp.—Net profit \$9,203, against \$65,488 for 1938, decrease due to development work on Alracuda and Alracobra pursuit ships. Sales of \$450,438 compared with \$1,219,952 in 1938. New type gun mount adapter for absorbing recoil of 50 & 30 caliber machine guns also has been developed. Feb. 1 backlog was \$7,400,000 with deliveries scheduled to June 1941. Assets are \$2,467,587; current assets \$1,491,208, with cash \$213,069. Current liabilities are \$210,865. All of an authorized 250,000 \$1-par shares are outstanding.

CANADIAN REPORTS

Club Aircraft Corp. Ltd., Hamilton, Ont., has sold 25,000 treasury shares to Sheldrake Securities Corp. Ltd., Toronto, for \$55,750 cash, granting option to purchase treasury shares as follows: 100,000 at \$3; 50,000 at \$3.50; 50,000 at \$4, all to be taken up 25,000 quarterly beginning June 15.

Canadian Airways Ltd., Montreal, has reduced paid-up capital from \$3,210,202 to \$506,113 by cancellation of \$2,704,089, and increasing by 200,000 number of shares which may be issued from treasury.

Ottawa Car & Aircraft Ltd., stock totaling 31,105 shares, no par, has been offered by W. C. Pitfield & Co. Ltd., and Wood, Gundy & Co. Ltd., at \$13.25, bringing total outstanding shares to 90,000 of an authorized 150,000. Of total proceeds, \$60,000 will start 1st unit of an assembly plant near Ottawa, and balance will replace working capital spent on purchasing 1,666 shares of Canadian Associated Aircraft Ltd. and on equipment. Backlog is \$4,000,000. Company has been paying an 80¢ dividend per annum on its stock.

Fairchild Aircraft Ltd., Longueuil, Que., has issued 200 \$5-par shares in exchange for \$1,000 principal amount of firm's 5% convertible notes, increasing outstanding shares to 127,800.

Airplane M & S Reports

Backlog of Over \$178,000

If business continues during 1940, the present monthly rate the company's earnings will be in excess of \$60,000 for the year, Earl Herring, general manager of Airplane Manufacturing & Supply Corp., Los Angeles, reported late in February. The company ended 1939 with earnings of \$42,500.

The corporation, which recently acquired the options of Herring to purchase from Bendix Aviation Ltd., the Pacific Airmotive and Airplane Parts & Supplies divisions, has a backlog of unfilled orders in excess of \$175,000. This is exclusive of miscellaneous monthly sales which average about \$50,000 a month.

Canadian Board Places Large Order for Irving Parachute

An order for \$1,108,005 worth of parachutes has been placed with Irving Air Chute Co. by the Canadian War Supply Board, George Waite, company president, announced recently. He said the order was the second and largest placed by the board with Irving in the last three months.

Converting the Silver Falcon

Maj. Max C. Fleischmann's Lockheed 14, the Silver Falcon, well known on many U. S. airports, is being converted into a Lodestar, model 18, by the service department of Lockheed Aircraft Corp., Burbank, Cal., under the direction of J. R. Hargrove. This operation is said to be the first of a series of similar conversion jobs planned by the department.

Incorporations

California—Pacific Aircraft Training School Inc., Los Angeles, Felix Cunningham and John H. Tracy, directors. Canada—Buckingham Automotive and Aviation Co. Ltd., Buckingham, Que., \$50,000.

Canada—International Aeronautical Corp. Ltd., 910 Concourse Bldg., Toronto, Ont., established for aeronautical research; to specialize in consulting work including aeronautical engineering and aircraft plant construction. Adam Craig, president & chief engineer; A. F. MacDonald, vice president. Delaware—Atlantic Aircraft Corp., to deal in goods, wares and merchandise; \$1,000,000 par \$1. R. F. Lewis, L. H. Herman, Walter Lenz, Wilmington.

Florida—Corry Aeronautical Inc., Quincy; air service; 25 shares, \$100 par value. Arthur Corry, E. S. Blake, H. M. Taylor, directors. Missouri—Independence Flying Club, Independence; purpose: "scientific, educational and fraternal"; incorporation sought "to enable members to purchase a Piper Cub trainer, 50 hp." Papers filed by Joe Fitzmorris, president, and William A. Haldeman, Jr., secretary-treasurer.

New Jersey—Sussex County Flying Club, 212 Grand Ave., Hackensack; to promote interest in aviation, own airplanes, give instruction in flying and own and operate flying fields. Agents in charge, Dr. J. Merith Smith; trustees for one year, Dr. Smith, Carl H. Winnefield, Dover; R. Walter Mitchell and C. E. Wyker, Newton, N. J. D. 3.

New York—Aero Lithme Corp., Mineola, Nassau County, air crafts; Raymond W. Alley, 30 Broad Street, New York City; \$20,000.

New York—Aircraft Unlimited Inc., Mineola, Nassau County; air crafts; Raymond W. Alley, 30 Broad St., New York City; \$20,000.

New York—Aviation Facilities Inc., Kings; aircraft; Fallister & Fallister, Woolworth Building, New York City; 100 shares no par value.

Ohio—Grimes Manufacturing Co., Urbana; \$75,000. Incorporators: Warren G. Grimes, Charlotte E. Grimes, H. W. Houston. Founded seven years ago, company "manufactures 90% of the landing lights used on airplanes manufactured in this country."

South Carolina—Rock Hill Flying Service, Rock Hill; to fly passengers and for charter trips; capital stock \$600. Officers: E. S. Miller Jr., president; John Adams, vice-president; R. E. Sims, treasurer.

Washington—Northwest Airlines Inc., St. Paul, Minn., \$1,594,967 by Doherty, Rumble, Butler, Sullivan & Mitchell, First National Bank Bldg., St. Paul. Amending Article VII.

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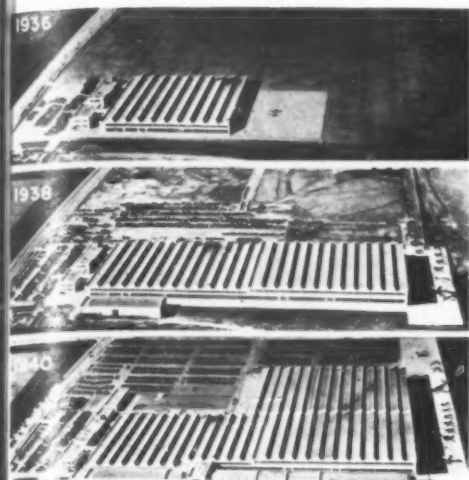
DIRECT GARAGE ENTRANCE
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Broadway on the Plaza
San Diego, California

Growth 'Without Interruption'

North American Aviation Inc. completed in February its second major factory expansion necessitated within a period of four years by recurring enlarged backlogs. Increasing production facilities by approximately 30%, the five new units completed and occupied added 227,000 sq. ft. of floor space to the company's manufacturing area which thus totaled 652,000 sq. ft. This does not include office floor space of approximately 100,000 sq. ft.

Accompanying photo shows how plant area was expanded from 162,000 sq. ft. in 1936



to 425,000 in 1938 and 652,000 in 1940. Because of a carefully worked out plan of plant readjustment, production smoothly expanded into each new building as it was completed without interruption. New space was correlated with the old to maintain the straight-line method of production assembly. This NA system now provides nine assembly lines upon which 125 planes are under production simultaneously.

Aside from the new structures themselves, other phases of the company's expansion program included paving of increased parking areas, additional roads to handle personnel traffic and police traffic-direction housing. Corresponding increases in personnel, which on Feb. 1 totaled 5,100 employees, toward an early-summer goal of 8,000 are in prospect, company executives indicated.

STINSON MOVES TO NASHVILLE APRIL 1

Present Plant May Be Continued if Business Warrants, Mara Says

Stinson Aircraft Div. of Aviation Manufacturing Corp. will transfer its principal operations Apr. 1 to the new plant now nearing completion at Nashville, Tenn. Since its founding by the late Edward A. "Eddie" Stinson, the company has been located at Wayne, Mich.

About 200 key employees will be taken to Nashville, according to William A. Mara, vice-president. All employees were given an opportunity to express a preference and about half signified a desire to go to the new factory. About 75%, however, would prefer to stay in Detroit if the present factory is kept open. Average employment is about 400.

Whether the present factory remains open depends upon pressure of business, officials said. One of the first orders to be turned out at Nashville will be 100 lightplanes ordered by the Army Air Corps. Planes now under construction at Wayne will be completed there. The Nashville plant is five times larger than the Wayne factory.

New Contracts Bring Ryan Backlog to \$1,680,000

Closing by Ryan Aeronautical Co., San Diego, Cal., of five new manufacturing contracts for exhaust systems totaling over \$300,000 was announced recently by T. Claude Ryan, president. The new contracts, placed by Douglas Aircraft Co. Inc. and Lockheed Aircraft Corp., bring the company's backlog to a new high of \$1,630,000.

White Biplane Testing

White Aircraft Corp., Leroy, N. Y., has been running type certificate tests on its new White Standard biplane, powered by a 300-hp. Wright. First ship, it was reported, will be delivered to the Dept. of Agriculture for use in crop dusting.

Kinner Delivers First of Canadian Engines

Two weeks after receipt of an order for 509 engines for Canada, Kinner Motors Inc., Glendale, Cal., made shipment of the first lot of 15, according to Earl Herring, general manager of the company. Balance of the contract, Herring said, is to be staggered over approximately a two-year period.

In addition to the Canadian contract, Kinner has orders from China, Turkey, South America and the U. S., which are being currently produced. Herring indicated that additional contracts are anticipated.

Canadian government has specified that Kinner engines are to be installed in Fleet planes. Powerplants are five-cylinder radial types of 125 hp. First Canadian order totals approximately \$700,000 and is said to be the largest single contract for aircraft engines ever placed with a Pacific coast manufacturer. Order boosted Kinner's backlog to more than \$850,000.

North American Enters PT Field With Menasco Powered NA-35



Although North American Aviation Inc. has been a large supplier of basic and advanced training planes to the Army Air Corps and foreign governments, with the BT-9 and BC-1 types established in military favor, the NA-35, recently completed by the Inglewood, Cal., organization marks the first entry of North American into the primary training field.

The new craft has been subjected to a series of flight tests at Los Angeles Municipal Airport with Vance Breese, NA consultant test pilot and engineer, at the controls. Tests have indicated that recovery from a 10-turn spin is effected in less than one turn by neutralizing the controls.

An all-metal, two-place, low-wing land monoplane, the NA-35 is powered by a Menasco Pirate model C45-2, four-cylinder, inline engine rated at 150 hp. at 2,260 rpm. at 3,000 ft. High speed of the craft is given as 140 mph.; cruising speed (75% of hp.), 125 mph.; landing speed with flaps, 48 mph.

Additional data follow:
Takeoff rating, 165 hp. at 2,260 rpm.; overall span, 29 ft. 8 1/2 in.; length overall, 25 ft. 6 in.; height overall, tail down, 9 ft. 4 in.; design gross weight, 1,760 lbs.; wing section, NACA series

4416 R at root, 6,409 R at tip; wing area, 148 sq. ft.
Fuel capacity, 24 gal.; maximum rate of climb, 900 ft. min.; service ceiling, 18,500 ft.; endurance (75% of hp.), 2.46 hrs.; range (75% of hp.), 305 mi.

The NA-35's fuselage is of full monocoque construction with one aluminum alloy bulkhead directly aft of each cockpit, and a firewall consisting of a single sheet of stainless steel. A turn-over truss integral with the fuselage structure is provided between the cockpits for protection of the crew and plane in the event of accidental turn-over.

Engine support consists of a monocoque aluminum alloy structure which connects with the inline engine by means of four bolts. This type of mount, which is bolted to the upper portion of the monocoque fuselage structure, is said to effect a saving in weight over tubular steel types and to give additional structural strength and improved vibration characteristics.

A spar-less type full cantilever wing is used, with a stressed skin surface supported by stringers and ribs. Slotted trailing edge flaps and differentially controlled ailerons are of aluminum alloy construction.

Grumman Monoplane for Navy



In production for the U. S. Navy are a number of these XF4F-3 one-place fighters powered by Pratt & Whitney R-1830 engines of 1,000 hp. Manufactured by Grumman Aircraft Engineering Corp., Bethpage, N. Y., the new fighters have an approximate wing span of 38 ft.; height is 9 ft. 2 in.; weight, 6,200 lbs.; speed, 350 mph., and range, 950 miles. (Official photograph, U. S. Navy).

Lycoming Divested of Everything but Aviation

Aviation Manufacturing Corp. has disposed of the marine and industrial engine machinery and equipment of Lycoming Division at Williamsport, Pa., leaving the Lycoming plant free to concentrate exclusively on aircraft engines and propellers. Purchaser of the other lines was Joseph Reid Gas Engine Corp.

Transair to Wichita?

Transair Corp., organized in San Francisco to build tri-motored transport planes, probably will choose Wichita, Kan., as the place for its factory, following financial and other inducements made by civil and industrial leaders of Wichita late in February. The proposed plant would be the now vacant Yellow Cab hangar. F. L. Hewitt is president of Transair and Lloyd Stearman, who founded Stearman Aircraft in Wichita in 1927, is vice-president.



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